September 2020 Academic, Research and Student Success Committee Meeting

Schedule	Thursday, August 27, 2020 1:00 PM — 3:00 PM CDT
Venue	Zoom Video Conference
Organizer	Sparkle Burns

Agenda

1. Call to Order and Opening Remarks

Presented by David Kemmee

2. Roll Call and Declaration of Quorum

Presented by David Kemmee and Melanie Murry

3. Approval of Meeting Minutes for March 4, 2020

For Approval

Presented by David Kemmee

University of Memphis
Academic, Research and Student Success Committee

March 4, 2020 | 8:30 am

Minutes

Agenda Item 1: Call to Order and Opening Remarks

Chair Kemme called the meeting to order.

Agenda Item 2: Roll Call and Declaration of Quorum

Melanie Murry, University Counsel and Board Secretary called the role and confirmed the following committee members were present.

Trustee Doug Edwards

Trustee Brad Martin (by phone)

Trustee David North

Trustee Carol Roberts

Trustee Noah Agnew*

Trustee David Kemme

Board Secretary Murry announced the presence of a quorum.

*Nonvoting member

Agenda Items 3 and 4: Approval of two sets of Meeting Minutes for September 4, 2019 and December 4, 2019

Chair Kemme asked if there was any discussion and then called for a motion. Motion was made by Trustee Edwards and properly seconded. A voice vote was taken and unanimously approved.

Agenda Item 5: **Institutional Mission**

Chair Kemme recognized Board Secretary Murry. Board Secretary Murry explained that the University is required to submit our Institutional Mission statement to THEC annually. This has been done for the past two years. There are no substantive changes. Chair Kemme asked if there was any discussion and then called for a motion. A motion was made and properly seconded. A voice vote was taken and unanimously approved.

Agenda Item 6: Tenure Upon Appointment for Dr. Lisa Onega

Chair Kemme recognized Dean Lin Zhan to discuss the request for tenure upon appointment for Dr. Lisa Onega. Dr. Zhan indicated that Dr. Onega went through the search and interview process by faculty, staff

and students supported the hiring of her. Dr. Onega has a wealth of experience as a program director, department chair, and associate dean. She has been tenured as full professor since 2007 at another university. Provost Nenon also endorsed the tenure upon appointment of Dr. Onega.

Chair Kemme asked if there was any discussion and then called for a motion. Motion was made by Trustee Roberts and properly seconded. A voice vote was taken and unanimously approved.

Agenda Item 7: Name Change from School of Health Studies to College of Health Sciences

Chair Kemme recognized Dr. Richard Bloomer, Dean, School of Health Studies. The school has experienced tremendous growth since it was formed in summer of 2015 when we were under TBR. At the time, the school had 30 faculty/staff members and approximately 300 students. Today, we have 52 faculty/staff members and over 1700 students. We have added many programs in the graduate and undergraduate level, including a graduate program in Nutritional Science. As well as an undergraduate program in Healthcare Leadership which is part of the UM Global portfolio, Sports Coaching, and academic minors in Medical Assisting and Health Wellness, and Nutrition. There is also a flagship program which is in Health Sciences.

Chair Kemme asked if there was any discussion and then called for a motion. Motion was made by Trustee Roberts and properly seconded. A voice vote was taken and unanimously approved.

Agenda Item 8: International Recruitment Efforts (presentation) 11 minutes into recording

Chair Kemme recognized Raaj Kurapati, Executive Vice President for Business and Finance/Chief Financial Officer. Mr. Kurapati provided information and updates about the international recruiting efforts.

Building student enrollment:

Phase I – Introduce new tuition structure to be more competitive and keep costs low for TN resident students. We also reset out- of- state and international tuition rates as well.

Fall 2018: International enrollment was 189 students which was 2.78% of the student body. On average, international student population is around 10%. Our peer institutes average 2,000 international students.

We began leveraging existing relationships with recruiters and partners and around the world. We started with India. As a result, we have seen international graduate student enrollment grow by about 21% in fall 2019.

Phase II – While we saw an increase in international graduate enrollment, there was a decline in undergraduate international enrollment. We will continue to focus on graduate international enrollment to make it sustainable as well as focus on undergraduate international enrollment. Graduate enrollment from spring to spring grew by about 9%. This translates to about $1.7 million in additional tuition and fees that these students bring to UofM over the course of their study. International enrollment is on the decline – average drop is approximately 10%. Because of our concentrated efforts, we saw a 21% growth in our international student enrollment.

Phase III – Continue to work on building long term relationships in STEM degree programs with institutions around the world. We have signed MOUs with five other institutions for 2 + 2 and 3 + 1 + 1

programs and are looking at additional peer institutions who are interested in working with us. We believe in Fall 2020, we will see a net growth of approximately 100 international students as a result of our efforts.

Chair Kemme asked if there was any discussion. No action required.

Agenda Item 9: Accreditation and Assessment (presentation)

Chair Kemme recognized Dr. Colton Cockrum, Assistant Vice Provost, Institutional Effectiveness, Accreditation, and Academic Assessment. Dr. Cockrum discussed and provided the following information on the types of Accreditation and Assessment.

Regional Accreditation

- SACSOC since 1927
- 90 standards and core requirements
- 5th year interim report is due March 15, 2021

Programmatic Accreditation

- Association to Advance Collegiate Schools of Business (AACSB), Accreditation Board for Engineering and Technology (ABET)
- Programs not accredited by outside accrediting agency, THEC requires a Program Review

Role of assessment in accreditation and Quality Assurance Funding

- assess general education, student faculty services, etc.
- Standards for online and on ground assessments are the same

Quality assurance funding – a component of our outcomes-based funding formula. It includes assessing academic programs - 1200 seniors are assessed each year for general education; each undergraduate program is assessed every five years; sending satisfaction studies, etc.

Cost of compliance

Assessment instruments - individuals, software and time.

Chair Kemme asked if there was any discussion. No action required.

Agenda Item 10: Carnegie I Update (presentation)

Chair Kemme recognized Dr. Jasbir Dhaliwal, Executive Vice President for Research and Innovation

Dr. Dhaliwal discussed research expenditures.

Dr. Ruz and Dr. Olney discussed The Learner Data Science Institute. The Institute's emphasis is on best methods for data science training and learning technologies for multiple skill levels (freshmen, STEM majors, graduate students and data science professions).

Chair Kemme asked if there was any discussion. No action required.

Agenda Item 11: Doctorate in Physical Therapy (presentation)

Chair Kemme recognized Dr. Richard Bloomer, Dean, School of Health Studies. Dr. Bloomer discussed and provided the following information for the Doctorate In Physical Therapy (DPT).

- The DPT program was previously approved 2018
- Highly cost-effective program
- Demand for this program is extremely high
- Sprague Hall at Lambuth will already be renovated (for Nursing) so the cost is minimal.
- All students will be tuition paying students
- Job market is fantastic (including West TN area)
- Clinical partnerships in place with West Tn Health Care and Star Physical Therapy

Chair Kemme asked if there was any discussion. No action required.

Agenda Item 12: Additional Committee Business

Chair Kemme called for additional business (none).

Agenda Item 13: Adjournment

Chair Kemme called for a motion to adjourn. Motion was made by Trustee Roberts and properly seconded.

4. Tenure Upon Appointment

For Approval

Presented by Tom Nenon

The University of Memphis Board of Trustees

Recommendation

Presentation

Date: August 27, 2020

Committee: Academic, Research, and Student Success

Presentation: Approval of Tenure upon Appointment

Presented by: Dr. Thomas Nenon, Executive Vice President for Academic Affairs and Provost

Background:

Dr. Papadopoulos is the incoming Sparks Family Chair of Excellence in Global Research Leadership in the Department of Computer Science. He has an exceptional record in teaching and mentoring students, publications, research funding, and service. He has been a tenured full professor at Colorado State University since 2014 and served as a program officer for the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) from 2018 to 2020. He has been prolific with grants, receiving more than 32 contracts and Grants totaling over $26M. Moreover, he has published 14 journal papers and 64 conference papers in high impact venues, receiving a total of 7616 citations. He has fulfilled the current tenure-track probationary period performance requirements in teaching, research, and service at the University of Memphis.

Committee Recommendation:

The Academic, Research, & Student Success Committee recommends approval of tenure upon appointment for Dr. Papadopoulos.

CURRICULUM VITAE

CV SECTION 1: Employment History/Awards

NAME Christos Papadopoulos

ADDRESS Department of Computer Science
Colorado State University
1873 Campus Delivery, Fort Collins CO 80523

PHONE (970) 491-3267
Email: christos@colostate.edu
URL: http://cs.colostate.edu/~christos/

EDUCATION

1999 D.Sc. in Computer Science, Washington University in St. Louis

1992 M.S. in Computer Science, Washington University in St. Louis

1989 B.S. in Computer Science, Queens College (CUNY) New York

1983 Diploma of Technician Engineer, Higher Technical Institute, Cyprus

RESEARCH INTERESTS

Network Protocols, Network Security, Network Measurements, Internet Architecture

EMPLOYMENT

(2018-2020) IPA to Department of Homelant Security, Science and Technology Directorate. Program Manager, managing projects in Cyber-Physical Systems security with emphasis on automotive cyber security, including autonomous vehicles; portfolio includes approximately $20M in projects that often include multiple institutions with dozens of PIs, SETAs (systems, engineering and technical assistants) and other project participants; a government/industry consortium on automotive cyber security; and managing projects co-funded by DHS and the NSF.

(2014- present) professor, computer science, Colorado State University

(2006-2014) associate professor, computer science, Colorado State University

(1999-2006) assistant professor, computer science, University of Southern California

SABATICALS

Fall 2015

OTHER POSITIONS

(1989–1999) research assistant, computer science, Computer and Communications Research Center (CCRC) and Advanced Research Laboratory (ARL), Washington University in St. Louis MO

CURRENT JOB DESCRIPTION

40% Teaching, 53% Research/Creative Activity, 7% Service/Outreach, 0% Admin.

HONORS AND AWARDS

Career Award, NSF, 2002

CV SECTION 2: Publications/Scholarly Record

PUBLISHED WORKS

Books:

None

Refereed Journal Articles:

1. H. Lim, A. Ni, D. Kim, Y. Ko, S. Shannigrahi, C. Papadopoulos. NDN construction for big science: Lessons learned from establishing a testbed. IEEE Network, IEEE, 2018.
2. K. Gadkari, L. Weikum, D. Massey, C. Papadopoulos. Pragmatic Router FIB Caching. Computer Communications, Feb 2016. http://www.sciencedirect.com/science/article/pii/S0140366416300251
3. L. Zhang, KC Claffy, P. Crowley, C. Papadopoulos, L. Wang and B. Zhang. Named Data Networking. Computer Communications Review, July 2014.
4. J. Touch, I. Baldine, R. Dutta, G. Finn, B. Ford, S. Jordan, D. Massey, A. Matta, C. Papadopoulos, P. Reiher, G. Rouskas, “A Dynamic Recursive Unified Internet Design (DRUID)”, *Computer Networks*, V55 N4, Mar. 2011, pp. 919–935
5. X. He, C. Papadopoulos, J. Heidemann, "Remote Detection of Bottleneck Links Using Spectral and Statistical Methods", Computer Networks, Volume 53 Issue, Feb 2009.
6. J. Mirkovic, P. Reiher, C. Papadopoulos, A. Hussain, M. Shepard, M. Berg and R. Jung, "Testings a Collaborative DDoS Defense in a Red Team/Blue Team Exercise," IEEE Transactions On Computers, v. 57, n. 7, July 2008.
7. K. Hwang, M. Cai, J. Pan, C. Papadopoulos, “WormShield: Fast Worm Signature Generation with Distributed Fingerprint Aggregation”, IEEE Transactions on Dependable and Secure Computing, Volume 4, Issue 2, Pages 88-104, April 2007.
8. “A Framework for Incremental Deployment Strategies for Router-assisted Services,” by Xinming He, Christos Papadopoulos, and Pavlin Radoslavov. IEEE/ACM Transactions on Networking. August 2006.
9. “NAM: A Network Adaptable Middleware to Enhance Response Time of Web Services,” by S. Ghandeharizadeh, C. Papadopoulos, M. Cai, R. Zhou, P. Pol. International Journal of Web Services Research, 2(4), 1-20, October-December 2005.
10. “Distinguishing between Single and Multi-source Attacks Using Signal Processing,” by Alefiya Hussain, John Heidemann, Christos Papadopoulos. Computer Networks Journal, Vol. 46, Issue 4, pp.479-503, November 2004.
11. “Performance of Networked XML-driven Cooperative Applications,” by S. Ghandeharizadeh, C. Papadopoulos, M. Cai, and K. K. Chintalapudi. Journal of Concurrent Engineering: Research and Applications, Volume 12, Number 3, pp.195-204, September 2004.

12. “A Comparison of Application-level and Router-assisted Hierarchical Schemes for Reliable Multicast,” by Pavlin Radoslavov, Christos Papadopoulos, Ramesh Govindan, and Deborah Estrin. IEEE/ACM Transactions on Networking, Vol. 12, No. 3, pp. 469-482, June 2004.
13. “LMS: A Router-assisted Scheme for Reliable Multicast,” by Christos Papadopoulos, Guru Parulkar and George Varghese. IEEE/ACM Transactions on Networking, Vol. 12, No. 3, pp. 456-468, June 2004.
14. “Experimental Evaluation of SunOS IPC and TCP/IP Protocol Implementation,” by Christos Papadopoulos and Guru Parulkar, ACM Transactions on Networking, Vol. 1, No. 2, pp.199 - 216, April 1993.

Accepted for Publication

Textbooks:

None

Refereed Chapters in Books:

1. “Performance of Networked XML-driven Cooperative Applications,” by S. Ghande-harizadeh, C. Papadopoulos, M. Cai, and K. K. Chintalapudi. Kluwer Academic Publisher, 2002.

Refereed Proceedings/Transactions:

1. S. Shannigrahi, C. Fan, C. Papadopoulos. SCARI: A Strategic Caching and Reservation Protocol for ICN. Asian Internet Engineering Conference (AINTEC ’18) Bangkok, Thailand, Nov 2018.
2. Shannigrahi, S., Fan, C., Papadopoulos, C. Named Data Networking Strategies for Improving Large Scientific Data Transfers. IEEE ICC 2018 Workshop - Information Centric Networking Solutions for Real World Applications (ICN-SRA workshop), Kansas City Mo, May 20-24 2018.
3. McAndrew, R., Gharaibeh, M., Wang, H., Hayne, S., Papadopoulos, C. A Functional Approach to Scanner Detection. The 13th Asian Internet Engineering Conference (AINTEC) 2017, Bangkok, Thailand, Nov 2017.
4. M. Gharaibeh, A. Shah, B. Huffacker, H. Zhang, R. Ensafi and C. Papadopoulos. A Look at Router Geolocation in Public and Commercial Databases. Proceedings of the Internet Measurement Conference (IMC 2017), London UK, Nov 2017.
5. S., Shannigrahi, C., Fan, C., Papadopoulos. Request Aggregation, Caching, and Forwarding Strategies for Improving Large Climate Data Distribution with NDN: A Case Study. 4th ACM Conference on Information-Centric Networking (ICN 2017), Berlin, Germany. Sep. 26-28, 2017.
6. P., Zuraniewski, N., van Adrichem, W., Ijntema, D., Ravesteijn, C., Papadopoulos, C., Fan. Facilitating ICN Deployment with an Extended OpenFlow Protocol. 4th ACM Conference on Information-Centric Networking (ICN 2017), Berlin, Germany. Sep. 26-28, 2017.
7. A. Shah, R. Fontugne, and C. Papadopoulos. Towards Characterizing International Detours. The 12th Asian Internet Engineering Conference (AINTEC) 2016, Bangkok, Thailand, Nov-Dec 2016 (best paper award).
8. S. DiBenedetto, and C. Papadopoulos. Mitigating Poisoned Content with Forwarding Strategy. The third Workshop on Name-Oriented Mobility: Architecture, Algorithms and Applications (NOM). San Francisco, CA, April 2016.
9. M. Gharaibeh, H. Zhang, C. Papadopoulos and J. Heidemann. Assessing Co-Locality of IP Blocks. Proceedings of Global Internet Symposium. San Francisco CA, April 2016.
10. H. Zhang, M. Gharaibeh, S. Thanasoulas and C. Papadopoulos. BotDigger: Detecting DGA Bots in a Single Network. The Traffic Monitoring and Analysis workshop (TMA), Louvain La Neuve, Belgium, April 2016.

11. Fan, C., Shannigrahi, S., DiBenedetto, S., Olschanowsky, C., Papadopoulos, C. and Newman, H. Managing scientific data with named data networking. In Proceedings of the Fifth International Workshop on Network-Aware Data Management (co-located with Supercomputing 2015), Austin, TX, November 2015.
12. H. Zhang and C. Papadopoulos. Early Detection of High-Entropy Traffic. IEEE Conference on Communications and Network Security (CNS) 2015. Florence, Italy, September 2015.
13. K. Gadkari, L. Weikum, D. Massey, and C. Papadopoulos. Pragmatic Router FIB Caching. IFIP Technical Committee on Communication Systems and IEEE Networking 2015, Toulouse, France, May 2015.
14. Gina Fisk, Calvin Ardi, Neale Pickett, John Heidemann, Mike Fisk and Christos Papadopoulos. Privacy Principles for Sharing Cyber Security Data. Proceedings of the IEEE International Workshop on Privacy Engineering, San Jose, California, USA, May 2015.
15. H. Zhang and C. Papadopoulos. BotTalker: Generating Encrypted, Customizable, C&C Traces. The 2015 IEEE Symposium on Technologies for Homeland Security (HST ’15), Waltham MA, April 2015.
16. S. Shannigrahi, A. Barczuk, C. Papadopoulos, A. Sim, I. Monga, H. Newman, J. Wu, and E. Yeh. Named Data Networking in Climate Research and HEP Applications. 21st International Conference on Computing in High Energy and Nuclear Physics (CHEP2015), Okinawa Japan, April 2015.
17. J. Czyz, M. Kallitsis, M. Gharaibeh, C. Papadopoulos, M. Bailey, and M. Karir. Taming the 800 Pound Gorilla: The Rise and Decline of NTP DDoS Attacks. In Proceedings of the Internet Measurement Conference (IMC) 2014, Vancouver, Canada, Nov 2014.
18. J. Gersch, D. Massey and C. Papadopoulos. Incremental Deployment Strategies for Effective Detection and Prevention of BGP Origin Hijacks. ICDCS 2014, Madrid, Spain, July 2014.
19. C. Olschanowsky, S. Shannigrahi and C. Papadopoulos. Supporting Climate Research using Named Data Networking. LANMAN 2014, Reno NV, May 2014.
20. X, Hu, C. Papadopoulos, J. Gong, D. Massey. Not So Cooperative Caching in Named Data Networking. Globecom 2013, Atlanta GA, Dec 2013.
21. C. Olschanowsky, L. Weikum, J. Smith, C. Papadopoulos, D. Massey. BGP Data In Real-Time and With Multi-Format Archiving. The 13th annual IEEE Delivering Diverse Conference on Technologies for Homeland Security (HST ’13), Waltham MA, November 2013.
22. H. Zhang, C. Papadopoulos, D. Massey. Detecting Encrypted Bot Traffic. Proceedings of Global Internet Symposium, (co-located with Infocom 2013), Turin, Italy, April 2013.
23. V. Kambhampati, C. Papadopoulos, D. Massey. Epiphany: A Location-Hiding Architecture for Protecting Critical Services from DDoS Attacks. Dependable Systems and Networks 2012, Boston MA, June 2012.
24. H. Yan, A. Flavel Z. Ge, A. Gerber, D.Massey, C. Papadopoulos, H. Shah, J. Yates. Argus: End-to-End Service Anomaly Detection and Localization from an ISP's Point of View. Infocom 2012 mini-conference, Orlando FL, March 2012.
25. E. Osterweil, D. McPherson, S. DiBenedetto, C. Papadopoulos, D. Massey. Behavior of DNS’ Top Talkers, a .com/.net View. Proceedings of the 13th Passive and Active Measurement Conference, March 2012.
26. V. Kambhampati, D. Massey and C. Papadopoulos. A Taxonomy of Capabilities Based DDoS Defense Architectures. The 9th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2011), Sharm El-Sheikh, Egypt, Dec 2011. Best paper award.

27. D. Massey, C. Papadopoulos, L. Wang, B. Zhang, L. Zhang. Teaching Network Architecture through Case Studies. SIGCOMM 2011 Education workshop, Toronto, Canada, Aug. 2011.
28. S. Dibenedetto, C. Papadopoulos and D. Massey. Routing Policies in Named Data Networking. ACM SIGCOMM Workshop on Information-Centric Networking (ICN 2011), Toronto, Canada, Aug. 2011.
29. G. Bartlett, J. Heidemann, and C. Papadopoulos. Low-Rate, Flow-Level Periodicity Detection. In Proceedings of the 14th IEEE Global Internet Symposium. Shanghai, China, IEEE. April, 2011.
30. H. Yan, B. Say, B. Sheridan, D. Oko, C. Papadopoulos, D. Pei, D. Massey. IP Reachability Differences: Myths and Realities. In Proceedings of the 14th IEEE Global Internet Symposium. Shanghai, China, IEEE. April, 2011.
31. K. Gadkari, D. Massey and C. Papadopoulos. Dynamics of Prefix Usage at an Edge Router. In PAM'11: Proceedings of the 12th Passive and Active Measurement Conference, March 2011.
32. S. DiBenedetto, K. Gadkari, N. Diel, A. Steiner, D. Massey, and C. Papadopoulos, “Fingerprinting Custom Botnet Protocol Stacks”, NPSec, Japan Oct. 2010.
33. C. Wilcox, C. Papadopoulos, and J. Heidemann, “Correlating Spam Activity with IP Address Characteristics”, Proceedings of 13th IEEE Global Internet Symposium (GI '10) in conjunction with IEEE INFOCOM 2010, San Diego, CA, Mar. 2010.
34. S. DiBenedetto, D. Massey, C. Papadopoulos, P. Walsh, “Analyzing the Aftermath of the McColo Shutdown”, the Workshop on Trust and Security in the Future Internet (FIST) (held in conjunction with SAINT 2009), Seattle, WA, July 2009.
35. John Heidemann and Christos Papadopoulos. Uses and Challenges for Network Datasets. In Proceedings of the IEEE Cybersecurity Applications and Technologies Conference for Homeland Security (CATCH), Washington, DC, USA, IEEE. March, 2009.
36. John Heidemann, Yuri Pradkin, Ramesh Govindan, Christos Papadopoulos, Genevieve Bartlett, and Joseph Bannister. Census and Survey of the Visible Internet. In Proceedings of the ACM Internet Measurement Conference, p. 169-182. Vouliagmeni, Greece, ACM. October 2008.
37. "Understanding Passive and Active Service Discovery," by Genevieve Bartlett and John Heidemann and Christos Papadopoulos. Proceedings of the 6th AMC SIGCOMM Conference on Internet Measurement Conference (IMC), San Diego, CA, Oct 2007.
38. Inherent Behaviors for On-line Detection of Peer-to-Peer File Sharing," by Genevieve Bartlett, John Heidemann and Christos Papadopoulos. Proceedings of 10th IEEE Global Internet Symposium (GI '07) in conjunction with IEEE INFOCOM 2007. Anchorage, AK, USA, May 2007.
39. Urbashi Mitra, John Heidemann Antonio Ortega, and Christos Papadopoulos. Detecting and Identifying Malware: A New Signal Processing Goal. IEEE Signal Processing Magazine, 23 (5), pp. 107-111, September 2006.
40. “Identification of Repeated Denial of Service Attacks,” by Alefiya Hussain, John Heidemann and Christos Papadopoulos. In Proceedings of the IEEE Infocom, Barcelona, Spain, IEEE. April, 2006.
41. “Experiences with a Continuous Network Tracing Infrastructure,” by Alefiya Hussain, Genevieve Bartlett, Yuri Pryadkin, John Heidemann, Christos Papadopoulos, Joseph

Bannister. MineNet-05: Workshop on Mining Network Data (MineNet 2005). Co-located with Sigcomm 2005. Philadelphia, PA, August 2005.

42. “A Second Report on the User Experiments in the Distributed Immersive Performance Project,” by E. Chew, R. Zimmermann, A.A. Sawchuk, C. Papadopoulos, C. Kyriakakis, C. Tanoue, D. Desai, M. Pawar, R. Sinha, and W. Meyer. 5th Open Workshop of MUSICNETWORK: Integration of Music in Multimedia Applications. Vienna, Austria, July 2005.
43. "Distributed Immersive Performance," by Elaine Chew and Alexander Sawchuk, Roger Zimmermann, The Tosheff Piano Duo (Vely Stoyanova and Ilia Tosheff), Christos Kyriakakis, Christos Papadopoulos, Alexandre Francois and Anja Volk. Presented at the panel session on “The Internet for Ensemble Performance” at NASM (National Association of the Schools of Music) Annual Meeting, San Diego, CA December 2004.
44. “CyberSeer: 3D Audio-visual Immersion for Network Security and Management,” by Christos Papadopoulos, Chris Kyriakakis, Alexander Sawchuk and Xinming He. CCS Workshop on Visualization and Data Mining for Computer Security (VizSec), Fairfax, VA, October 2004.
45. “Musical Interaction at a Distance,” by Elaine Chew, Roger Zimmermann, Alexander A. Sawchuk, Chris Kyriakakis, Christos Papadopoulos, Alexandre R. J. Francois, Gerry Kim and Anja Volk. Accepted for publication at the 4th Open Workshop of MUSICNETWORK, Universitat Pompeu Fabra, Barcelona, Spain, September 2004.
46. “An Adaptive Multiple Retransmission Technique for Continuous Media Streams.” Rishi Sinha and Christos Papadopoulos. In Proceedings of The 14th International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV). Kinsale, County Cork, Ireland, June 2004.
47. “The Remote Media Immersion System,” by Roger Zimmermann, Chris Kyriakakis, Cyrus Shahabi, Christos Papadopoulos, Alexander A. Sawchuk, Ulrich Neumann. Published in the IEEE MultiMedia Magazine, special issue on "Digital Multimedia on Demand," Vol.11(2):48-57, April-June 2004.
48. “From Remote Media Immersion to Distributed Immersive Performance.” A.A. Sawchuk, E. Chew, R. Zimmermann, C. Papadopoulos and C. Kyriakakis. ACM SIGMM 2003 Workshop on Experiential Telepresence (ETP 2003) November 7, 2003, Berkeley, California, USA. In conjunction with ACM Multimedia 2003.
49. “NAM: A Network Adaptable Middleware to Enhance Response Time of Web Services,” by S. Ghandeharizadeh, C. Papadopoulos, P. Pol, R. Zhou. Proceedings of the 11th ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunications Systems (MASCOTS), Orlando, FL, October 2003.
50. “A Framework for Classifying Denial of Service Attacks,” by Alefiya Hussain, John Heidemann, Christos Papadopoulos. In Proceedings of Sigcomm 2003, Karlsruhe, Germany, August 2003.
51. “Loss Concealment for Multi-channel Streaming Audio,” by Rishi Sinha, Christos Papadopoulos, Chris Kyriakakis. In Proceedings of The 13th International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV). Monterey, CA, June 2003.
52. “Proteus: A System for Dynamically Composing and Intelligently Executing Web Services,” by Craig A. Knoblock, Christos Papadopoulos, Cyrus Shahabi, Esam Alwagait, Jose Luis Ambite, Min Cai, Ching-Chien Chen, Parikshit Pol, Rolfe Schmidt, Saihong Song, Snehal

Thakkar, and Runfang Zhou. Proceeding of the First International Conference on Web Services (ICWS), Las Vegas, NV, June 2003.

53. "Cossack: Coordinated Suppression of Simultaneous Attacks," by Christos Papadopoulos, Robert Lindell, John Mehringer and Alefiya Hussain. Proceedings of DISCEX 3, Arlington, VA, April 2003.
54. "A Framework for Incremental Deployment Strategies for Router-assisted Services," by Xinming He, Christos Papadopoulos, and Pavlin Radoslavov. In Proceedings of IEEE Infocom 2003.
55. "Eliminating Steganography in Internet Traffic with Active Wardens," by Gina Fisk, Mike Fisk, Christos Papadopoulos and Joshua Neil. In Proceedings of the 5th International Workshop on Information Hiding. Noordwijkerhout, The Netherlands, Oct. 7-9 2002, pp. 17-33.
56. "Using ns in the Classroom and the Lab," by Christos Papadopoulos and John Heidemann. Sigcomm Educational Workshop, Pittsburg, PA, August 2002.
57. "Performance of Networked XML-driven Cooperative Applications," by S. Ghandeharizadeh, C. Papadopoulos, M. Cai, K. K. Chintalapudi. In Proceedings of Second International Workshop on Cooperative Internet Computing (CIC, held in conjunction with VLDB), August 2002.
58. "A Comparison of Application-level and Router-Assisted Hierarchical Schemes for Reliable Multicast," by Pavlin Radoslavov, Christos Papadopoulos, Ramesh Govindan, and Deborah Estrin. Proceedings of IEEE Infocom 2001, Anchorage, Alaska, April 2001.
59. "Incremental Deployment of a Router-assisted Reliable Multicast Scheme," by Christos Papadopoulos and Emanouil Laliotis, Proc. of Networked Group Communications (NGC2000), Stanford University, Palo Alto, CA. November 2000.
60. "An Error Control Scheme for Large-scale Multicast Applications," by Christos Papadopoulos, Guru Parulkar and George Varghese, IEEE Infocom '98, March 1998. Also appeared as a Brief Announcement at Proc. of Principles of Distributed Computing (PODC), June 28-July 2, 1998, Puerto Vallarta, Mexico.
61. "Retransmission-based Error Control for Continuous Media Applications," by Christos Papadopoulos and Guru Parulkar, Proc. of the Sixth International Workshop for Network and Operating Systems Support for Digital Audio and Video, NOSSDAV '96, Zushi, Japan, April 23-26, 1996.
62. "Implosion Control in Multipoint Transport Protocols," by Christos Papadopoulos and Guru Parulkar, Tenth Annual IEEE Workshop on Computer Communications, Eastsound, Washington, September 1995.
63. "The 3M Project: Multipoint Multimedia Applications on Multiprocessor Workstations and Servers," by Guru Parulkar, Milind Buddhikot, Charles Cranor, Zubin Dittia and Christos Papadopoulos, Proc. of IEEE Workshop on High Performance Communication Systems, September 1993.
64. "Experimental Evaluation of SunOS IPC and TCP/IP Protocol Implementation," by Christos Papadopoulos and Guru Parulkar, IEEE Infocom '93, April 1993.

Non-Refereed Journal Articles/Chapters/Proceedings/Transactions:

1. Named data networking (ndn) project, by Lixia Zhang, Deborah Estrin, Jeffrey Burke, Van Jacobson, James D Thornton, Diana K Smetters, Beichuan Zhang, Gene Tsudik, Dan Massey,

Christos Papadopoulos, Tarek Abdelzaher, Lan Wang, Patrick Crowley, Edmund Yeh. Relatório Técnico NDN-0001, Xerox Palo Alto Research Center-PARC, Oct 2010.

2. Genevieve Bartlett, John Heidemann, and Christos Papadopoulos. Using Low-Rate Flow Periodicities for Anomaly Detection: Extended. Technical Report ISI-TR-2009-661, USC/Information Sciences Institute, August, 2009.
3. Diel N., Gadkari K., Steiner A., DiBenedetto S., Papadopoulos C., "Characterizing TCP Resets in Established Connections". Colorado State University Technical Report, CS-08-102.
4. John Heidemann, Yuri Pradkin, Ramesh Govindan, Christos Papadopoulos, Genevieve Bartlett, and Joseph Bannister. Census and Survey of the Visible Internet (extended). Technical Report ISI-TR-2008-649b, USC/Information Sciences Institute, February 2008. Updated August 2008.
5. "Exploring Visible Internet Hosts through Census and Survey," by John Heidemann, Yuri Pryadkin, Ramesh Govindan, Christos Papadopoulos, and Joseph Bannister. Technical Report ISI-TR-2007-640, USC/Information Sciences Institute, May, 2007.
6. Genevieve Bartlett, John Heidemann, and Christos Papadopoulos. Inherent Behaviors for On-line Detection of Peer-to-Peer File Sharing. Technical Report ISI-TR-2006-647, USC/Information Sciences Institute, December 2006.
7. "Internet Packet Size Distributions: Some Observations," by Rishi Sinha, Christos Papadopoulos, and John Heidemann. Technical Report ISI-TR-2007-643, USC/Information Sciences Institute, May, 2007. Originally released October 2005 as web page: http://netweb.usc.edu/ rsinha/pkt-sizes/.
8. Xinming He, Christos Papadopoulos, John Heidemann, Urbashi Mitra, Usman Riaz, and Alefiya Hussain. Spectral Analysis of Bottleneck Traffic. Technical Report USC-CSD-TR-05-854, University of Southern California Computer Science Department, May, 2005.
9. Rishi Sinha, Christos Papadopoulos, and John Heidemann. Fingerprinting Internet Paths using Packet Pair Dispersion. Technical Report 06-876, University of Southern California Computer Science Department, February 2005.
10. “Spectral Characteristics of Saturated Links.” Xinming He, Christos Papadopoulos, John Heidemann and Alefiya Hussain. Technical Report USC-TR-04-827, University of Southern California Computer Science Department, 2004.
11. “Identification of Repeated Attacks Using Network Traffic Forensics.” Alefiya Hussain, John Heidemann and Christos Papadopoulos. Technical Report, ISI-TR-2003-577b, USC/Information Sciences Institute, 2003.
12. “A Framework for Classifying Denial of Service Attacks - Extended version,” by Alefiya Hussain, John Heidemann, and Christos Papadopoulos. Technical Report, ISI-TR-2003-569b, USC/Information Sciences Institute, June, 2003.

CONTRACTS & GRANTS

Awarded

1. (2018-20) Detecting, Interpreting, and Validating from Outside, In, and Control, disruptive Events (DIVOICE) PIs: John Heidemann (USC/ISI), Christos Papadopoulos (CSU). Funding agency: DHS. Total requested award: $2.84M ($300K/year to CSU).
2. (2017-20) Secure Handhelds on Assured Resilient Networks at the Tactical Edge (SHARE). Sub-award from the University of Memphis. Funding agency: DARPA. CSU PI: Christos Papadopoulos. Total award to CSU: $240K

3. (2017-19) Los Angeles/Colorado Application and Network Information Community (LACANIC). John Heidemann (USC/ISI) and Christos Papadopoulos (CSU). Funding agency: DHS. Total award $654K. CSU: $130K.
4. (2017) Gift from CableLabs to support hardware purchases. $20K. July 2017
5. (2017) "Planning for the Future - A Proposal from Computer Science". C. Papadopoulos, W. Trzyna and D. Whitley. University internal grant from the OVPR to improve CS research facilities. $200K.
6. (2017-19) CC* Integration: SDN Assisted NDN for Data Intensive Experiments (SANDIE). PI: Edmund Yeh (Northeastern University. Co-PIs: Christos Papadopoulos (Colorado State University) and Harvey Newman (Caltech). Funding agency: NSF. Total award: $1M. CSU portion: $280K.
7. (2015-18) CSU PI: Christos Papadopoulos. "Netbrane: A Software-Defined DDoS Protection Platform for Internet Services." Funding agency: Department of Homeland Security. Total award: $2.7M.
8. (2015) CableLabs gift award, $50K.
9. (2014-16) CSU PI: Christos Papadopoulos. "Australian WIT, Phase 2: Monitoring Australian Critical Infrastructure." $163K, Funding Agency: Department of Homeland Security.
10. (2014-2016) CSU PI: Christos Papadopoulos. "FIA-NP: Collaborative Research: Named Data Networking Next Phase (NDN-NP)". Funding agency: NSF. Total award: $300K.
11. (2013-16) CSU PI: Christos Papadopoulos. Co-PIs: Cathie Olschanowsky and David Randall. " CC-NIE Integration: Supporting Climate Modeling Over Named Data Networking (NDN)". Funding agency: NSF. Total award: $1M.
12. (2013-16) CSU PI: Christos Papadopoulos. Co-PI: Dan Massey. Collaborative Research: CI-ADDO-EN: Making Internet Routing Data Accessible To All. Funding agency: NSF. Total award: $599,684.00. CSU portion: $436K.
13. (2012-17) Joint ISI/CSU award. CSU PI: Christos Papadopoulos. ISI PI: John Heidemann. "Los Angeles/Colorado Research Exchange for Network Data (LACREND)." Total grant award: $3M. Colorado sub-award: $475K. Funding Agency Department of Homeland Security. September 2012 – September 2017.
14. (2012-15) CSU PI: Christos Papadopoulos. CSU co-PI: Dan Massey. ISI PI: John Heidemann. LANL PI: Mike Fisk. "The Retrospective Future in the Internet (Retro-Future)." Joint ISI/CSU/LANL award. Total grant award: $3M. Colorado sub-award: $733K. Funding Agency: Department of Homeland Security. November 2012 – November 2016.
15. (2011-2012) CSU PI: Dan Massey. CSU co-PI: Christos Papadopoulos. "Australian WIT: Monitoring Australian Critical Infrastructure." $150K, Funding Agency: Department of Homeland Security. September 2011-September 2012.
16. (2010-2013) CSU PI: Dan Massey. CSU co-PI: Christos Papadopoulos. "Named Data Networking." Colorado State subcontract: $722K. Funding Agency: NSF. August 2010 – July 2013.
17. (2007-2012) Joint CSU/ISI award. CSU PI: Christos Papadopoulos. ISI PI: John Heidemann. "LANDER-2007: Los Angeles Network Data Exchange Repository." Total award: $3M. Colorado State subcontract: $420K. Funding Agency: HSARPA. August 2007 - July 2012.
18. (2006-9) John Heidemann, Christos Papadopoulos, Urbashi Mitra, Antonio Ortega. "Maltraffic Analysis and Detection in Challenging and Aggregate Traffic (MADCAT)."

$896K. Funding Agency: NSF. October 2006 – September 2009. Colorado State subcontract: $223.7K. No cost extension through September 2010.

19. (2006-2009) Boris Rozovsky, I. Cohen (USC), A.L. Bertozzi (UCLA), C. Papadopoulos (USC), P.J. Brantingham (UCLA), A. Tartakovsky (USC), T. Chan (UCLA), V.V. Veeravalli (UIUC), H.V. Poor (Princeton). "Spatio-temporal Nonlinear Filtering with Applications to Information Assurance and Counter Terrorism." $5M. Program: Multidisciplinary Research Program of the URI (MURI). Funding Agency: Office of Naval Research. May 2006 – November 2009. Colorado State subcontract: $123K for three years (option years TBD).
20. (2006-2006) Christos Papadopoulos, John Heidemann, Urbashi Mitra, Antonio Ortega. "Spectral Analysis Techniques to Identify Security Problems in Aggregate Network Traffic." $83K. Funding Agency: Cisco. January – December 2006.
21. (2006-2008) Christos Papadopoulos, "CAREER: NetSams: Network Assistance for the Internet". $363,163. Funding Agency: NSF, No-cost extension to February 2008. Transfer to Colorado State: $116.7K
22. (2004-2006) Leana Golubchik, B. Clifford Neuman, Christos Papadopoulos (co-PI), Gerard G. Medioni, and Nenad Medvidovic. "Collaborative Project: An Innovative Information Assurance and Security Technology Capacity Development and Outreach Program." $300K. Funding Agency: NSF. August 2004 – July 2006.
23. (2004-2006) John Heidemann and Christos Papadopoulos, "LANDER: Los Angeles Network Data Exchange Repository." $2.2M. Funding Agency: HSARPA. July 2004 - December 2006.
24. (2003-2005) Alexander Sawchuk, Christos Papadopoulos, Leana Golubchick, Roger Zimmerman, and Chris Kyriakakis. "Acquisition of Equipment for Distributed Immersive Performance." $400K. Funding Agency: NSF. Duration: Sept. 2003 – August 2005.
25. (2003-2003) Shahram Ghandeharizadeh, Craig Knoblock, Christos Papadopoulos and Cyrus Shahabi, "Web Services". $250K. Funding Agency: Microsoft Corporation. January - December 2003.
26. (2002-2003) John Heidemann and Christos Papadopoulos, "SAMAN-DDoS." 470K. Funding Agency: DARPA. November 2002.
27. (2000-2003) Deborah Estrin, John Heidemann, Christos Papadopoulos, and Jong-suk Ahn, "Collaborative Simulation for Education and Research (*CONSER*)", Funding agency: NSF $1.5M. May 2000 - April 2003.
28. (2004-2004) Christos Papadopoulos. Pratt and Whitney Institute for Collaborative Engineering. $17,340. Funding agency: InHa University, South Korea. June 2004 – December 2004.
29. (2002-2003) Christos Papadopoulos, "Looking for DDoS: Trace Analysis of Internet Traffic," $45K. Funding Agency: Los Alamos National Laboratory June 2002 - Jan 2003.
30. (2001-2003) Christos Papadopoulos, Ramesh Govindan and Bob Lindell, "Coordinated Suppression of Simultaneous Attacks (*COSSACK*)." Funding agency: DARPA, $1.2M. July 2001 - June 2003.
31. (2002-2007) Christos Papadopoulos, "CAREER: NetSams: Network Assistance for the Internet". $363,163. Funding Agency: NSF, March 2002 - February 2007.
32. (2000-2001) Christos Papadopoulos, "Router Assisted Internet Multicast Services (*RAIMS*)". Funding agency: Cisco, $65K. October 2000.

PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS

1. Research Update to FRGP. November 2017.
2. "Named Data Networking in Science Applications." CALTECH, Nov 20, 2017
3. "Netbrane: A Software-Defined DDoS protection Platform for Internet Services." SCTE/ISBE Cable Tex Expo, Denver, CO October 2017.
4. "Netbrane: A Software-Defined DDoS protection Platform for Internet Services." Cybersecurity Research Acceleration Workshop - Oct 18, 2017 – San Francisco CA
5. Research Update to FRGP. Aug 2017.
6. "Netbrane: A Software-Defined DDoS protection Platform for Internet Services." DHS Showcase, Arlington VA, July 2017.
7. "Netbrane: A Software-Defined DDoS protection Platform for Internet Services." M3AAWG 40th General Meeting, Lisbon, Portugal, June 2017
8. "Netbrane: A Software-Defined DDoS Protection Platform for Internet Services." DHS S&T, CSD meeting, April 2017, Arlington VA.
9. "Named Data Networking in Science Applications." Webinar to the Large Scale Networking Interagency Working Group of the Networking and Information Technology Research and Development Subcommittee of the NSTC. April 2017.
10. "Named Data Networking in scientific applications." Susmit Shannigrahi, Chengyu Fan and Christos Papadopoulos. NDN Community Meeting, March 23, 2017, Memphis TN.
11. "Netbrane: A Software-Defined DDoS Protection Platform for Internet Services." DHS DDoS PI meeting, March 9, Houston TX.
12. "Towards Characterizing International Routing Detours." Anant Shah and Christos Papadopoulos. The Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT) 2017, Feb 28, 2017, Ho Chi Minh City, Viet Nam.
13. "BGPMON.IO: the Many New Faces of BGPMON." North American Network Operators Group (NANOG69), Feb 6 2017, Washington DC.
14. "Netbrane: A Software-Defined DDoS Protection Platform for Internet Services." DHS IMAM PI meeting, Jan 30, 2017 Salt Lake City, UT.
15. "WIT: A Watchdog for Internet Routing." DHS Showcase presentation, Feb 2016.
16. "Netbrane: A Software Defined DDoS Protection Platform for Internet Services." DHS technical workshop, February 2016.
17. "Future Internet Security and Architecture." WESTCON Beyond Security, Jan 2016.
18. "Named Data Networking: An Internet Architecture for the Future." Invited talk, ESGF meeting, Monterey CA, Dec 2015.
19. "Named Data Networking: An Internet Architecture for the Future." Invited talk, LHCOPN-LHCONE meeting, Amsterdam NL, Oct 2015.
20. "Named Data Networking: An Internet Architecture for the Future." Invited talk, University of Memphis, Oct 2015.
21. "Named Data Networking: An Internet Architecture for the Future." Keynote presentation, NSF SwitchOn Workshop, Sao Paolo, Brazil, Oct 2015.

22. “Managing Scientific Data with Named Data Networking.” NSF PI meeting, Austin TX, Sept 2015
23. “Beyond the Firewall: Observing Global Internet Dynamics.” FORTH, Crete, Sept 2015.
24. “Netbrane: A software Defined DDoS Protection Platform for Internet Services.” DHS kick-off meeting, Fort Collins, CO, Aug 2015.
25. “A Catalog for Scientific Data.” CERN, Switzerland, July 2015.
26. “WIT-II: A Watchdog for Internet Routing.” DHS PI meeting, San Diego, CA, June 2015.
27. “WIT-II and BGPmon.” Presentation to the Australian Government (DSTO), Australia, April 2015.
28. “Named Data Networking in Climate Science and HEP Applications.” CHEP 2015, Okinawa, Japan, April 2015.
29. “BGPMon: The next Generation” AIMS workshop, San Diego CA, April 2015.
30. “Internet Security: Life beyond my Firewall”. WESTCON security event, Park City, UT, Feb 2015.
31. “Named Data Networking’ NSF SwitchOn workshop, Florida, Jan 2015.
32. “Supporting Climate applications with NDN.” Invited presentation, CMMAP retreat, Jan 2014.
33. “Supporting Climate applications with NDN.” Invited presentation, The Third International Workshop on Network-Aware Data Management, SC 2013, Nov 2013.
34. “Supporting Climate applications with NDN.” Invited presentation, Project retreat, San Diego CA, Nov 2013.
35. “A Fresh Look at Scalable Forwarding Through Router FIB Caching.” NANOG 57, Orlando FL, Feb 2013.
36. “Content Auditing in ICN.” CCW, Nov 2012, Sedona, AZ.
37. “Scaling and Security in NDN.” Invited panel presentation. ICCCN 2012, Munich, Germany, July 2012.
38. “What is Measured Can be Improved: Adventures in Internet Measurements”, invited keynote speech, AICCSA 2011, Dec 2011.
39. “A Taxonomy of Capabilities Based DDoS Defense Architectures”, AICCSA 2011, Dec 2011.
40. “Challenges in Large Data Capture and Research”, Dartmouth workshop on traffic generators, Nov 2010.
41. “Named Data Networking”, CCW Oct 2010.
42. “Lander-CSU Project”, PerfSonar, July 2010.
43. “Census and Survey of the Visible Internet.” University of Cyprus, December 2009.
44. “Lander Progress Report.” FRGP Engineers, July 2009.
45. “Towards Best Practices for Active Network Measurements.” AIMS 2009, San Diego CA, February 2009.
46. “Coffee with CSU.” IsTec IAB meeting, Boulder CO, November 2008.
47. “Spectral Approaches to DDoS Attacks.” MURI PI Meeting, Brown University, September 2008.

48. "Census and Survey of the Visible Internet." *Invited presentation*. FORTH-ICS, Crete, May 2007.
49. "Spectral Approaches to DDoS Attacks." MURI PI Meeting, Brown University, November 2006.
50. "Fingerprinting Internet Paths Using Packet-Pair Dispersion." *Invited presentation*. University of Toronto, March 2006.
51. "Fingerprinting Internet Paths Using Packet-Pair Dispersion." *Invited presentation*. Colorado State University, February 2006.
52. "Defending Against DDoS Attacks." *Invited presentation*. Colorado State University, November 2005.
53. "Investigating Spectral Analysis for Network Traffic." *Invited presentation*. Intel Research, London England. September 2005.
54. "Cossack: Coordinated Suppression of Simultaneous Attacks, and ANT: Analysis of Network Traffic." *Invited presentation*. Georgia Tech, GA. August 2004.
55. "Cossack: Coordinated Suppression of Simultaneous Attacks, and ANT: Analysis of Network Traffic." *Invited presentation*. Massachusetts Institute of Technology, MA. August 2004.
56. "Cossack: Coordinated Suppression of Simultaneous Attacks, and ANT: Analysis of Network Traffic." *Invited presentation*. Columbia University, NY. July 2004.
57. "Cossack: Coordinated Suppression of Simultaneous Attacks, and ANT: Analysis of Network Traffic." *Invited presentation*. University of Virginia, VA. July 2004.
58. "Spectral Techniques for Internet Traffic." *Invited presentation*. Data Catalog Workshop, CAIDA, San Diego, CA. June 2004.
59. "Spectral Techniques for Analyzing Internet Traffic." *Invited presentation*. ICSI Center for Internet Research, Berkeley, CA. March 2004.
60. "Spectral Analysis: New Techniques for Characterizing Internet Traffic." *Invited presentation*. NSF, Arlington VA. February 2004.
61. "Characterizing DDoS Attacks." *Invited presentation*. Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC. October 2003.
62. "Cossack: Coordinated Suppression of Simultaneous Attacks." *Invited presentation*. CERT, Carnegie Melon University, Pittsburgh, PA. August 2002.
63. "Distributed Immersive performance." *Invited presentation*. The 2nd International Workshop on Information Technology, Nicosia, Cyprus. May 2002.
64. "Networking Issues in MIE." IMSC Annual NSF Site visit. USC. June 2001.
65. "Cossack: Coordinated Suppression of Simultaneous Attacks." *Invited presentation*. Los Alamos National Laboratories. March 2002.
66. "Networking Issues in MIE." IMSC Annual NSF Site visit. USC. June 2000.
67. "RAIMS: an Architecture for Router-assisted Internet Multicast Services." *Invited presentation*. ETH, Zurich, Switzerland. October 2000.
68. "LMS Performance and Applications." Fifth Reliable Multicast Research Group meeting, Arlington VA. December 3-4 1998.
69. "Performance Comparison of LMS and PGM using NS." Fourth Reliable Multicast Research Group meeting, London UK. July 6-7 1998.

70. "An Error Control Scheme for Large-scale Multicast Applications." IEEE Infocom '98, San Francisco, CA. March 1998.
71. "Comparison of LMS, AIM and PGM," Third Reliable Multicast Research Group meeting, Orlando, FL. February 1998.
72. "An Error Control Scheme for Large-scale Multicast Applications." Second Reliable Multicast Research Group meeting, Cannes France. September 1997.
73. "Experimental Evaluation of SunOS IPC and TCP/IP Protocol Implementation." IEEE Infocom '93, San Francisco, CA. April 1993.

OTHER ACTIVITIES/ACCOMPLISHMENTS – PUBLICATIONS/SCHOLARLY RECORD

2008-9: Helped organize the annual security exercise (CANVAS) that includes students are Colorado State University, US Air Force Academy, Denver University and other Colorado universities.

Involved in an ongoing effort to publish network traces through the DHS-funded program PREDICT, to benefit the community of security resesearchers.

CV SECTION 3: EVIDENCE OF TEACHING AND ADVISING EFFECTIVENESS

TEACHING:

Year	Semester	Course No/Title	Cr. Hours	Enrollment
2006	Fall	CS457 - Computers/Internet	4	33
2007	Spring	CS680 - Adv Networking	4	9
2007	Fall	CS370 - Operating Systems	4	42
2008	Spring	CS680 - Adv Networking	4	4
2008	Fall	CS457- Computers/Internet	4	14
2009	Fall	CS657 - Adv Networking	4	3
2010	Spring	CS557 - Computer Networks	4	14
2010	Fall	CS457 - Computers/Internet	4	30
2011	Spring	CS451 - Operating Systems	4	47
2011	Fall	CS657 - Advanced Topics	4	3
2012	Spring	CS657 - Computer Networks	4	3
2012	Fall	CS457 - Computers/Internet	4	29
2013	Spring	CS370 - Operating Systems	4	66
2013	Fall	CS457 – Computer Networks	4	42
2014	Spring	CS557 - Adv Networking	4	14
2015	Spring	CS557 - Adv Networking	4	17
2016	Spring	CS557 – Adv Networking	4	10
2017	Spring	CS557 – Adv Networking	3	5

Development of New Courses

CS680, Spring 2007. This is a seminar course with emphasis on systems security, where students created their own network with Cisco routers and real services (mail, DNS, web, SSH, ftp) and staged attacks and defenses.

POSTDOCS SUPERVISED

Cathie Olschanowsky (2016-17)

Ella Sienkiewicz (2016-18)

STUDENT ADVISING/GRADUATE SUPERVISION

GRADUATE STUDENTS

PhD Students

Chengyu Fan PhD, Spring 2020 (final defense completed, on-track to graduate)

Manaf Gharaibeh PhD, Spring 2020 (final defense completed, on-track to graduate)

Susmit Shannigrahi PhD, Spring 2019 (now assistant professor at Tennessee Tech)

Anant Shah PhD, Spring 2018 (now at Edgecast)

Han Zhang PhD, Spring 2017 (now at SalesForce)

Joe Gersch, PhD, Spring 2013 (co-advisor, now special assistant professor at Colorado State University)

Vamsi Kambhampati, 2012 PhD (now at Apple)

He Yan, 2012 PhD (co-advisor, now at AT&T Research)

Genevieve Bartlett, 2010 PhD (co-advisor, now at USC/ISI)

Rishi Sinha 2006, PhD

Xinming He, 2006 PhD (now at Cisco)

Alefiya Hussain, 2005, PhD (now at USC/ISI)

MS Students

Dan Rammer (MS, Spring 2018)

Steven DiBenedetto (MS, Spring 2016, now at Google)

Kaustubh Gadkari (MS, Spring 2010, now at Ooyala)

Mengran Hu, MS 2010

Adnan Mahmud, 2004, MS

Emmanuil Laliotis, 2000, MS

UNDERGRADUATE STUDENTS

Will Yingling (graduated)

Nick Diel (graduated)

David Kapp (graduated)

Kathrine Shubert (graduated)

Andrea Steiner (graduated)

Tyler Scott (graduated)

Descriptions of Mentoring Activities

Helped develop the NetSec Lab, with Prof. Massey. Supervised several undergraduates and one graduate student in network administration, web page development, machine configuration, etc.

CV SECTION 4: Evidence of Outreach/Service

INTERNAL COMMITTEES

Faculty Council, CNS At-Large Representative, July 1 2013 – June 30 2016

Department Graduate Admissions Committee, 2012, 2013

Department Graduate Program committee, 2011

Department Operations Committee, 2010

Coffee with CSU, Coordinator, IsTec, 2008-11

Department Undergraduate Committee, 2008-9

Department Graduate Admissions Committee, 2007

Department Research Committee, 2006

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Professional Memberships: ACM, IEEE.

1. TPC co-chair, AINTEC 2017.
2. TPC Co-chair, Networking, 2016
3. TPC Co-chair, ICCCN, NACSD track, 2013
4. TPC Co-chair, Global Internet, 2008.
5. Chair, Computer Communications Workshop, Fall 2008.
6. Treasurer, Sigcomm 2005.
7. Student Travel Awards committee member, Sigcomm 2004.
8. TPC Co-chair, NOSSDAV 2003.
9. Panel Chair, ACM OpenSig 2002, Lexington, KY. Theme: “Extensible Networks.”
10. Chair, Student Travel Awards, Sigcomm 2001.
11. Program Committee member, Cyber & Information Security Research Conference (Oak ridge National Labs) 2017
12. Program Committee member, INFOCOM 2017.
13. Program Committee member, International Teletraffic Congress (ITC) 29 Area 2, 2017
14. Program Committee member, ACM WISCS 2014
15. Program Committee member, ACM ICN, 2014, 2015, 2016, 2017
16. Program Committee member, Networking 2010-16

17. Program Committee member, ICN Workshop, 2013
18. Program Committee member, ICN Workshop, 2013
19. Program Committee member, ICCCN, 2012
20. Program Committee member, Global Internet 2010-13
21. Program Committee member, IMC 2009
22. Program Committee member, Sigcomm 2009
23. Program Committee member, Global Internet, 2007.
24. Program Committee member, Sigcomm 2007.
25. Program Committee member, Networking 2006.
26. Program Committee member, Infocom 2006.
27. Program Committee member, Comsware 2006.
28. Program Committee member, Networking 2005.
29. Program Committee member, Sigcomm 2004.
30. Program Committee member, Infocom 2004.
31. Program Committee member, NGC 2003.
32. Program Committee member, Infocom 2003.
33. Program Committee member, NGC 2002.
34. Program Committee member, NOSSDAV 2002.

Grant Proposal Reviewer: National Science Foundation. External reviewing and panel reviews. 2000 – Present.

Conference and Journal Reviewer: Transactions on Computers, IEEE/ACM Transactions on Networking, Computer networks, ACM Sigcomm, ACM Sigmetrics, IEEE Infocom, ICDCS, ICMCS, IZS, SPIE/ACM MMCN, NOSSDAV, IEEE RTTAS, HIPPARCH, LCN, IEEE Magazine, and more.

OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH

Member of the Internet 2 CEO search committee 2017 (https://www.internet2.edu/news/detail/12842/)

h-index (May 2020): 31

Paper Citations (papers with over 100 citations as of May 2020, source: Google Scholar)

1. Named data networking (2014): 1932 citations.
2. Named data networking (ndn) project (2010): 968 citations.
3. A Framework for Classifying Denial of Service Attacks (2003): 645 citations.
4. An Error Control Scheme for Large-Scale Multicast Applications (1998): 329 citations.
5. Eliminating steganography in Internet traffic with active wardens (2003) 227 citations
6. Cossack: Coordinated suppression of simultaneous attacks (2003) 199 citations
7. Internet packet size distributions: Some observations (2007) 190 citations
8. Census and survey of the visible internet (2008): 175 citations.

9. Retransmission-Based Error Control for Continuous Media Applications (1996): 174 citations.
10. Taming the 800 pound gorilla: The rise and decline of NTP DDoS attacks (2014): 137 citations
11. The Menlo Report: Ethical principles guiding information and communication technology research: 123 citations
12. Experimental evaluation of SUNOS IPC and TCP/IP protocol implementation (1993): 109 citations.

Contributed Software

- Flowride: 100Gbps lossless packet and network capture tool. Available upon request.
- BGPMon: Available at http://bgpmon.io
- LMS simulation software: contributed software module to ns. Available at http://www.isi.edu/ns/
- PGM simulation software: contributed software module to ns. Available at http://www.isi.edu/ns/
- Cossack: Coordinated Suppression of Simultaneous Attacks. Available at http://www.isi.edu/cossack
- With Dan Massey: BGPmon: software to monitor BGP activity in the Internet

  bgpmon.netsec.colostate.edu
- With John Heidemann: The ANT project

  www.isi.edu/ant

External Evaluations

The Cossack software was selected to undergo Red Team Evaluation at a DARPA testing facility in Arlington, VA. Oct 2002 – April 2003. DARPA selects only a handful of projects from each program for Red Team evaluation.

THE UNIVERSITY OF MEMPHIS

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July 27, 2020

Dear University of Memphis Board of Trustees,

I have thoroughly reviewed Dr. Christos Papadopoulos' past performance in research, teaching, and service. Based on his strong record, **I recommend that Dr. Papadopoulos be granted tenure with the rank of Full Professor upon appointment**.

Dr. Papadopoulos received his PhD in 1999 from the Washington University in St. Louis, MO. His thesis proposed a novel methodology to achieve reliable multicast by adding minimal functionality to the network. The work was later generalized and resulted in an NSF CAREER award. He joined the University of Southern California as an assistant professor in 1999 and moved to Colorado State University as an associate professor in 2006. He was promoted to the rank of full professor in 2014 at Colorado State University. From 2018 to 2020, he served as Program Manager at the Department of Homeland Security Science and Technology Directorate, where he managed several projects in Cyber Physical Systems security.

Dr. Papadopoulos works primarily in the research areas of computer networking and cybersecurity. His research is high quality and impactful. He has published **14 journal papers** in high-impact journals including IEEE/ACM Transactions on Networking with an h5-index of 59, Elsevier Computer Networks with an h5-index of 56, Elsevier Computer Communications with an h5-index of 50, IEEE Transactions on Dependable and Secure Computing with an h5-index of 54, and IEEE Transactions on Computers with an h5-index of 65. He also published one book chapter in 2002. Moreover, he has published **64 peer-reviewed papers** in highly selective conferences such as ACM SIGCOMM with an h5-index of 65, IEEE INFOCOM with an h5-index of 72, ACM Internet Measurement Conference with an h5-index of 37, and International Conference on Distributed Computing Systems with an h5-index of 39. He has published a number of papers in computer science education. In addition, he has made several presentations at network operator conferences such as NANOG and MAAWG, demonstrating his research impact in operational settings. According to Google Scholar (https://scholar.google.com/citations?user=TsVU8EcAAAAJ&hl=en&oi=ao), his publications have a total of 7616 citations with an h-index of 31 and an i10-index of 77.

Dr. Papadopoulos has an outstanding funding record. He has received more than **32 contracts and Grants totaling over $26M** from NSF, DARPA, DHS, ONR, and companies such as Cisco and Cablelabs. Below are some selected grants**:**

- NetBrane, a distributed DDoS defense mechanism (DHS, $3M). The project explores proactive DDoS defense mechanisms such as Internet surveillance to detect scanning

activities that may be a precursor to DDoS attacks, proactive analysis of routing to prepare black-hole rules based on observed scanning activities, machine learning for anomaly detection and finally rules deployed in an SDN switch to filter an attack.

- Detecting, Interpreting, and Validating from Outside, In, and Control, disruptive Events (DIVOICE) (joint with USC/ISI, DHS, $2.8M). The project explores Internet measurements to detect, categorize and analyze network disruptive events such as those resulting from attacks or natural disasters such as hurricanes.
- Los Angeles/Colorado Application and Network Information Community (LACANIC) (joint with USC/ISI, DHS, $654K). As part of the PREDICT/IMPACT DHS program, the project collects and curates data that is made available to security researchers. Data is collected both globally and locally from a university and an ISP. The project has helped dozens of researchers with their research and publications.
- Named Data Networking and Named Data Networking Next Phase (NDN-NP) (NSF, $1M). These are the two phases of NDN funding from the NSF to develop a new, named-based internet architecture. The project continues at multiple universities and many papers on NDN routinely appear at the ICN conference each year.
- Supporting Climate Modeling Over Named Data Networking (NDN) (NSF, $1M). This project was the first to investigate the use of NDN in big data applications, namely Climate Science. It paved the way for two more NSF projects to explore NDN in High-Energy Physics (HEP) applications with Northeastern and Caltech.
- The Retrospective Future in the Internet (Retro-Future) (with USC/ISI, and LANL, DHS, $3M). Developed techniques to capture, store, analyze and replay Internet data at various resolutions for post-facto analysis of network attacks.

Dr. Papadopoulos taught five different courses at Colorado State University, including Computers/Internet, Computer Networks, Advanced Networking, Operating System, and Advanced Topics. One of the courses, Advanced Networking, is a new course he developed that focuses on systems security, where students created their own network with Cisco routers and real services (mail, DNS, web, SSH, ftp) and staged attacks and defenses. He has consistently received scores over 4 out of 5 in his teaching evaluations.

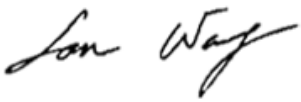
Dr. Papadopoulos' mentoring to his students is extraordinary. He supervised **two post-docs**, both women. He has graduated **12 PhD students**, two of them in academic positions and others in companies such as AT&T, CISCO, Apple, Verizon, SalesForce, and Silicon Valley startups. He has also graduated **six MS students**. In addition, he has supervised the research of six undergraduate students.

He has been actively contributing to his research community. He has been a member of over 20 NSF panels and has served on the program committees of over 30 conferences including ACM SIGCOMM, IEEE INFOCOM, and ACM Internet Measurement Conference. He is currently co-chairing the 2020 NDN Community Meeting to be hosted by NIST in September 2020. Moreover, he contributed several software packages to the research community, including Flowride, BGPMon, LMS, PGM and Cossack. In addition, he participated in the DHS-funded project IMPACT (previously PREDICT) for over 10 years collecting and distributing network traces to the security and measurement community to test and validate their algorithms. He has maintained BGPMon, a system that provides continues BGP data in real-time to the research community. He managed a DHS-funded Pilot program that deploys DDoS detection and mitigation hardware (valued at over $250K) and software at three ISPs to support three

projects and allow them to test their systems with real traffic.

In summary, Dr. Papadopoulos has demonstrated an exceptional record in research, teaching and service. Thus, I whole-heartedly, without reservation, support his tenure and promotion to Full Professor.

Sincerely,



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Research and Management Experience

Christos Papadopoulos

A. Management Experience

Before moving to DHS in May 2018, I was involved in two large research efforts at Colorado State University. The first was to assemble a team to pursue a Department of Homeland Security (DHS) Center of Excellence. These are 10-year, $40M efforts, and DHS awards only one or two when they issue a call. I lead a small group at CSU that assembled an appropriate national team comprised of researchers at CSU and other universities and we submitted an application. While we were a finalist, in the end no team was selected due to administrative changes at the federal level; the process, however, gave me valuable experience to pursue such efforts in the future, something that I fully intend to do. The second effort was to engage in discussions (which included the University of Memphis through Lan) to start the process for an NSF ERC application, which I would have pursued given more time. The conversations included Jim Kurose, who was the CISE director at the time and previously a member of a successful ERC. At the University of Memphis I expect to immediately initiate exploratory efforts to determine the viability of a center-level effort based on Autonomy. I believe that my experience at DHS and my interactions with the NSF have given me much more experience and exposure to such efforts.

For the last two years I have been serving as a program manager at the DHS Science and Technology (S&T) office. Here I have been managing projects in the Cyber-Physical Security (CPS) space. These areas include automotive, building automation, medical device cybersecurity, and more. The projects I manage include both new and legacy with a total budget of approximately $20M. The projects have a variety of performers (as they are known at DHS), ranging from industry, government, and academia. The types of performers are very diverse, from researchers to policy makers, regulators, lawyers, law enforcement personnel, and academics to name a few. I have had substantial interactions with government agencies such as the Department of Transportation (DoT), the Department of Energy (DoE), the Army, DARPA, and the National Institute of Standards and Technology (NIST). I have also collaborated substantially with the National Science Foundation (NSF), by co-funding three projects in cybersecurity for Industrial Control Systems (ICS), additive manufacturing and automotive cybersecurity. My projects often include collaborations with multiple agencies such as DoT and NIST, and almost always involve interactions with industry.

The role of a DHS program manager is similar to an NSF program officer but there are significant differences. For example, at DHS we are expected to have frequent interactions with the PIs, having at least four touch points per year. During those meetings we see detailed technical presentations by all PIs and provide feedback on progress. We also expect monthly reports from PIs and have weekly calls. DHS PMs take a more active role in introducing the PIs to other PIs, industry members and other government entities that may be interested in the work. PMs also spend substantial time fostering transition to practice, overseeing pilot deployments and holding bake-offs between the various projects. I plan to bring this management expertise to the University of Memphis should I be given the opportunity.

Another important difference is that while NSF program directors deal mostly with academics, DHS PMs deal with a far wider set of PIs from industry and government as well. DHS PMs also work with international partners in the form of co-funded projects and studies. I have found that the automotive cybersecurity space is an area where international collaboration is highly sought by our domestic and international partners given the size and complexity of the problem. For example, our Canadian and British partners always want to keep abreast of activities in the US, and our Israeli partners are interested in new technologies coming out of the US. International collaboration is something I value very highly, and I expect to bring the knowledge and experience I gained to the University of Memphis.

An important avenue of industry interaction at DHS is the Small Business Innovation Research program. The DHS program is again different from the similarly-named NSF program in that university participation is not required. I funded several proposals under the DHS SBIR program, which has exposed me to small business culture and needs. Having seen numerous proposals, I gained a good feel of what it takes to be successful and I expect to bring that know-how with me to assist with commercialization efforts.

Due to the diverse set of stakeholders I had to give presentations and participate in panels that varied substantially in content, ranging from highly technical to government program overviews, vision, planning, and strategy. I have observed group and cultural norms and adjusted the content of my presentations to maximize the effectiveness of messaging. A successful presentation will look different when you talk to industry vs. academia vs. regulators, even if the content is similar. For instance international partners may not react favorably to presentations extolling US technical superiority, so catering the message based on your audience is key.

As A DHS PM I also funded/participated in educational efforts. I touch on those in my teaching statement.

B. Managing staff

The staff is the most important resource any manager can have. My personal philosophy is to create a close relationship with my staff, emphasizing the team rather than the individual. I give staff the freedom to perform their best and always encourage a feedback channel. I emphasize clear communication and expectations, while being understanding of individual and personal needs. I come from very humble beginnings, being the first in my family to go to college and get a PhD, and I constantly try to relate and encourage people of all backgrounds and abilities.

C. Research Experience

While my research efforts at the university were suspended when I joined DHS, I was involved in several research activities prior to taking my leave from the university. I managed to continue my involvement with some in my capacity as a PM which I have described below.

DDoS Detection and Mitigation: When I became a DHS PM, I was in the middle of a DHS-funded project called NetBrane to develop next-generation DDoS detection and mitigation. NetBrane had four pillars: high-speed (100G) network unsampled flow capture, statistical and machine learning techniques to detect traffic anomalies, correlation with network structural information such as topology and routing to compose high-precision traffic filtering rules, and a real-life deployment at an ISP. The program

included two other institutions, USC/ISI and the University of Oregon. All teams developed DDoS detection and mitigation technology, but Netbrane was the only one to use statistical/ML techniques. As a DHS PM I was able to provide additional funding to the teams for a pilot that includes three ISPs: FRGP in Colorado, UEN in Utah and ESnet at Berkeley. The pilot includes equipment deployment at all three locations with each project getting access to test their technology. I helped the Colorado State University team design and specify the architecture and deploy the equipment. Currently, deployment is complete at FRGP and we are in the process of deploying at the other two locations.

Future Opportunities: There are several opportunities to move forward with the DDoS pilot. The platform can be opened to other agencies/projects doing similar research. So far I have contacted DARPA regarding their XD3 program as well as the DoD and the NSA. A very promising opportunity is to work with the NSF's FABRIC project. As it happens, all three pilot locations are part of FABRIC and we can use the "bring your own hardware" option in FABRIC to integrate. This would be the first time this option would be used in FABRIC. The broader goal would be to use the DHS pilot as a model for a ubiquitous monitoring infrastructure as FABRIC grows. An exciting opportunity is to integrate flow capture across all sites, tracking flows across the entire network, something that is highly desirable when generating data for machine learning techniques in the Internet. This may facilitate Autonomous Internet Routing by using real network data to train the system.

Named Data Networking (NDN): Along with Lan, I was one of the original PIs in a series of NDN projects funded by the NSF. I participated in the two funding phases and in two CC* awards that explored the use of NDN in Big Data applications (climate and High-Energy Physics). NDN presents a great opportunity to continue and strengthen my collaboration with Lan and pursue other areas for NDN.

Future NDN Opportunities: FABRIC has named NDN as a technology they expect to support. Automotive applications of NDN is a direction I believe has very strong potential and one where Lan and I could pursue a unique NDN angle. Looking more broadly and based in part on knowledge I gained at DHS, I believe NDN is highly suited for Smart and Connected Communities applications. There is a great leadership opportunity to work with the entire NDN team to produce a few quick successes to demonstrate to the community its usefulness. The NSF has invested substantial resources in NDN and I believe would welcome more initiatives from the team to broaden its applications. The NDN team is now scattered across many institutions, which has advantages and disadvantages. I strongly believe that the team would welcome a bit more coordination and with involvement from Lan and myself we can take a leadership position in the team. Finally, a few startups are already using NDN, and I believe a partnership with them would be beneficial.

Collaboration Opportunities: An obvious collaboration opportunity is the FedEx Institute of Technology. There are also several research groups that I can collaborate directly at the department. These include, the Cybersecurity, Game Theory and Cybersecurity groups, and of course the Networking Research Lab. The Cognitive Computing Research group and the Language and Information Processing Research Lab would be great collaborators for autonomy. I also want to investigate opportunities with the other groups, such as Software Systems and the Human-Oriented Software Engineering Lab. I believe there are other opportunities to be discovered such as at the Institute for Intelligent Systems.

Teaching Statement

I have over 20 years of teaching experience, mostly teaching network, operating systems and security courses. A list of the courses I taught at Colorado State University appears in my CV. I enjoy teaching tremendously, both graduate and undergraduate courses, and I always try to bring in real-life experience in my classes. I have consistently received scores over 4 out of 5 in my teaching evaluations.

One of my priorities if I were to join the University of Memphis is to bring more female students into Computer Science. For that purpose I would like to pursue the BRAID diversity program (http://anitab.org) and add the University of Memphis to the list of BRAID schools. The program has a proven track record of success and would be worthwhile to explore.

At DHS I provided funding for the SAE Cyber Auto Challenge (https://www.sae.org/attend/cyberauto). I also attended the actual event and found it to be fascinating. This is a annual, one-week long, boot-camp style event, where students spend the first three days under intensive instruction learning about automotive cybersecurity and the last two hacking on cars. There are about 40 students at each event, ranging from high-school to graduate level. About 25% are typically women, a great achievement. The automakers provide the vehicles for experimentation and at the end of the event many students forge relationships with employers and receive job offers. The University of Memphis can participate by sending students to the event, collaborating in developing instruction material and adopting some of the existing material. Currently, the event does not have an AI/ML/Autonomy focus but they are very interested in incorporating such material and is an opportunity to expand the existing program.

Another type of autonomy-related course that could be initiated at the university is an undergraduate level hands-on course where students build, program and test/evaluate small-scale autonomous vehicles. Such as course is currently taught at Rutgers University and it is extremely popular. The final event in the course is a race, where the fastest car wins. Such as course would be virtually self-sustaining with one year's graduates serving as TA's for the next year, and an excellent feeder to a graduate program in autonomy.

I am also interested in developing and teaching an Ethics course in Computer Science, and specifically Autonomy. I believe that no university teaching advanced technology courses should be without it. Such a course would leverage local resources but also world-renowned guest speakers. I will use my government and academic connections to bring in well-known speakers to kick-off the class.

Finally, a successful teaching plan must be flexible enough to leverage local talent and resources to perform community outreach. There are several opportunities to engage with the community such as offering cybersecurity instruction at various levels including high school, state, law enforcement and business owners. There are several funding opportunities from federal agencies that can be leveraged and a few cybersecurity designations to pursue (NSA for example) to open doors for more funding. I also plan to engage with potential local donors, both large companies such as FEDEX and private donors. Leveraging the Industry Advisory Board would be very helpful in creating such connections and providing a feedback loop to the department.

REQUEST FOR A REDUCTION OF TENURE TRACK PROBATION PERIOD

This is a request to recommend that Christos (First) Papadopoulos (Middle) (Last) in the Department of Computer Science

be granted a 6 year(s) reduction in his/her tenure probation period. A copy of his/her vita must be attached.

Date: 7/27/2020 **Justification** (If necessary, use additional pages and attach to this form.)

Dr. Papadopoulos has had an exceptional career in both academia and government. He was a tenured full professor at Colorado State University. He then joined the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) as a program officer, managing Cyber Physical Systems Security (CPSSEC) projects with emphasis on Automotive Cybersecurity. He has been prolific with grants (receiving 32 grants and contracts, of which 10 were multimillion dollar grants as PI or Co-PI). Moreover, he has published 14 journal papers and 64 conference papers in high impact venues, receiving a total of 7616 citations. He has taught five different courses at Colorado State University and consistently received scores over 4 out of 5 in his teaching evaluations. He supervised two post-docs, both women. He has graduated 12 PhD students, two of them in academic positions and others in companies such as AT&T, CISCO, Apple, Verizon, SalesForce, and Silicon Valley startups. He has also graduated six MS students. In addition, he has supervised the research of six undergraduate students.

More information about Dr. Papadopoulos' research, teaching, and service can be found in the attached CV and research/teaching statement.

APPROVAL SIGNATURES:

		COMMENTS
Departmental Chairperson	7/27/2020 Date	
Dean	7/27/20 Date	
Provost	07/29/20 Date	
President	7/31/2020 Date	

The University of Memphis is an Equal Opportunity/Affirmative Action University

TDPD FORM Revised 5/2006

5. Student Conduct Emergency Rule Related to Title IX

Presentation

Presented by Tiffany Cox and Justin Lawhead

The University of Memphis Board of Trustees

Recommendation

Approval

Date: August 27, 2020

Committee: Academic Research and Student Success

Presentation: Student Code of Conduct, Title IX Rule

Presented by: Justin Lawhead, Dean of Students and Chief Safety Officer

Background:

Per the Uniform Administrative Procedures Act, policies involving the discipline of students must be approved by the Tennessee state legislature through the rulemaking process. The new federal Title IX regulations, with an effective date of August 14, require that institutions of higher education have in place policies to comply with the federal regulations. Because the Title IX regulations contain provisions related to the discipline of students, it is necessary that student specific provisions of the University's Title IX policy be approved by the state legislature. Therefore, an emergency rule is being implemented to comply with state law.

Recommendation:

The Academic, Research and Student Success Committee recommends approval of the Student Code of Conduct, Title IX Rule as reflected in the meeting materials.

Rules of
University of Memphis

Chapter 0240-10-07
Student Code of Rights and Responsibilities

Table of Contents is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.01 Purpose, Scope and Introduction is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.01 Purpose, Scope and Introduction

(1) The matriculation of a student at the University of Memphis is a voluntary entrance into the academic community. By such voluntary entrance, the student assumes obligations of performance and behavior reasonably imposed by the University relevant to its lawful missions, processes, and functions.

(2) The University has established the Student Code of Rights and Responsibilities ("Student Code") in order to advance the mission of the University by maintaining a safe and secure learning environment, protecting the rights and privileges of all members of the University community, providing a basis for the orderly conduct of the affairs of the University, promoting a positive relationship between the University and its surrounding community, preserving institutional integrity and property, encouraging students to engage in conduct that brings credit to themselves and the University, and ensuring that each student who matriculates at the University graduates ready to contribute to society as an ethical and responsible citizen.

(3) Students are responsible for being fully acquainted and for complying with this rule and other rules and policies relating to students. Each student member of the University of Memphis community bears responsibility for their conduct. Students also may assume reasonable responsibility for the behavior of others.

(4) The University of Memphis is committed to respecting the rights of students under the Constitution and state and federal laws. Nothing in this chapter is intended or shall be interpreted to restrict students' constitutional rights, including, but not limited to, rights of freedom of speech and assembly.

(5) Authority and responsibility relating to the Student Code are delegated to the Dean of Students, who has delegated certain authority and responsibility to the Office of Student Accountability ("OSA"). The Director of the Office of Student Accountability is authorized to determine the appropriate form and method of disciplinary proceedings that a student or organization will be provided consistent with University procedures and any applicable federal and/or state law(s). The Director of the Office of Student Accountability shall also be charged with the implementation of policies and procedures for the administration of disciplinary investigations, hearings and appeals.

(6) The standard for determining responsibility for alleged violations of the Student Code shall be a preponderance of evidence.

(7) This Code is not applicable to the University Schools' students who shall adhere to the policies of or adopt polices substantially similar to the local education authority through which they receive funding.

(8) The provisions of this rule shall supersede any conflicting provisions of the University's existing Code of Student Rights and Responsibilities.

Statutory Authority: T.C.A. § 4-5-102(12); 20 U.S.C. § 1681; 20 U.S.C. § 1682; T.C.A. § 49-8-203(a)(1)(D).

0240-10-07.02 Jurisdiction is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.02 Jurisdiction

(1) University policies governing student conduct apply to conduct on University property. In the case of conduct that occurs off University property, the Dean of Students, in his/her sole discretion, shall determine whether the Code will be applied to such misconduct by taking into consideration whether the misconduct:

(a) Occurs in connection with a University activity;

(b) Involves another member of the University community;

(c) Is fairly attributable to a student organization;

(d) Consists of academic dishonesty or research misconduct; or

(e) Poses a credible, serious threat to the health and safety of the University community or University property.

(2) Each student shall be responsible for their conduct from the time of admission to the University of Memphis or enrollment in a course offered by the University of Memphis through the actual awarding of a degree, even though conduct may occur before classes begin or after classes end, as well as during the academic year, and during periods between terms.

(3) Each student organization shall be responsible for its conduct from the time of application for registration through the time that the organization is voluntarily disbanded or is no longer

officially recognized by removed from the University in accordance with applicable policy. Actions taken by members of student organization, particularly officers of the student organization, may be imputed to the student organization.

(4) University disciplinary proceedings may be instituted against a student and/or student organization charged with conduct that potentially violates both criminal law and the Student Code (that is, if both possible violations result from the same factual situation) without regard to the pendency of civil or criminal litigation or criminal arrest and prosecution. Proceedings under this rule may be carried out prior to, simultaneously with, or following civil or criminal proceedings at the discretion of the Dean of Students. Determinations made or sanctions imposed under the Student Code shall not be subject to change because criminal charges arising out of the same facts giving rise to violation of University rules were dismissed, reduced, or resolved in favor of or against the involved student(s).

Statutory Authority: 20 U.S.C. § 1681; 20 U.S.C. § 1682

0240-10-07-.03 Definitions is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.03 Definitions

(1) The term “business day” means any weekday not designated by the University as a holiday or administrative closing day. When calculating a time period of business days specified in the Code, the business day of the event that triggers a time period is excluded.

(2) The term “complainant” means an individual who is alleged to be the victim of conduct that could constitute a violation under this Code. Except for in Title IX sexual harassment complaints, in the absence of a formal complaint from another member of the University community, the University, a University employee, or another office or department within the University will serve in the role as complainant.

(3) The term “consent” means an informed decision, freely given, made through mutually understandable words or actions that indicate a willingness to participate in mutually agreed upon activity. Consent cannot be given by an individual who is asleep; unconscious; or mentally/physically incapacitated, either through the effect of drugs/alcohol or for any other reason; or is under duress, threat, coercion, or force. Past consent does not imply present or future consent. Silence or an absence of resistance does not imply consent. Consent can be withdrawn at any time.

(4) The term “Dean of Students” the institutional official charged with administration of student discipline and/or their designee.

(5) For purposes of complaints of sexual harassment that meet the requirements of Title IX, a “formal complaint” means a document filed by a complainant or signed by the Title IX Coordinator alleging sexual harassment against a respondent and requesting that the University investigate the allegation of sexual harassment. A formal complaint may be filed with the Title IX Coordinator in person, by mail, or by electronic mail.

(6) The term “good faith” means having a belief in the truth of information that a reasonable person in the same situation could have, based on the information known to the person communicating the information at the time the information was communicated by that person.

Information is not communicated in good faith if it is communicated with knowing or reckless disregard for information that would negate the former information.

(7) The term “member of the University community” means any person who is a student, University official, campus visitor, or participant in a University-sponsored or University-affiliated activity.

(8) The terms “notice” or “written notice” as relates to delivery of information to students means notice given in writing and transmitted by United States mail, courier service, and/or hand delivery to the address the University’s Registrar has on file for the student; and/or by e-mail to the student’s University-provided e-mail account. When a notice is transmitted by United States mail or courier service, the notice is effective on the date that it is mailed or delivered to the courier service. When a notice is transmitted by hand delivery, the notice is effective on the date that it is delivered to the person to whom the notice is addressed. When a notice is transmitted by e-mail, the notice is effective on the date that the e-mail is sent. A student’s University-issued e-mail address is the official method of communication used by the University regarding student conduct matters.

(9) The term “party” means either complainant or respondent. References in this rule to the plural “parties” includes complainant and respondent.

(10) The term “respondent” means an individual or student organization who has been reported to be the perpetrator of conduct that could constitute a violation under this Code.

(11) The term “retaliation” means any action taken by an accused individual or an action by a third party against any person because that person has reported a violation of the University's policies or because that person has filed a complaint, served as a witness, assisted, or participated in an investigation or proceeding. This includes action taken against a bystander who intervened to stop or attempt to stop discrimination, harassment, or sexual misconduct. Retaliation includes intimidating, threatening, or coercing an individual because of the individual's complaint or participation.

(12) The term “student” includes all persons who are admitted, enrolled, or registered for courses at the University, either full-time or part-time, pursuing undergraduate, graduate, continuing education, vocational education, or professional studies. Persons who withdraw after allegedly violating the Student Code, who are not officially enrolled for a particular term but who have a continuing relationship with the University or who have been notified of their acceptance for admission are considered “students” as are persons who are living in University owned or controlled housing, although not enrolled in this institution.

(13) The term “student organization” means any organization comprised primarily of currently enrolled Students.

(14) The term “threat” means any written, verbal, or non-verbal conduct that causes a reasonable expectation of injury to the health or safety of any person or damage to any property.

(15) The term “University” means the University of Memphis.

(16) The term “University property” means all land, buildings, facilities, grounds, structures, or any other property controlled, owned, leased, used, maintained, or operated by the University.

For purposes of this rule, University controlled property includes all streets, alleys, sidewalks, public ways abutting such property, and computers and network systems owned, maintained, or controlled by the University or funded by the University.

(17) The term “University-affiliated activity” means any activity on or off University property that is initiated, aided, authorized, sponsored, or supervised by the University.

(18) The term “University official” means an employee of the University, including faculty members, staff, University-recognized volunteers. Student employees may be considered University officials when acting in the performance of their duties (e.g., event staff, building monitors, resident assistants, and teaching assistants).

Statutory Authority: 20 U.S.C. § 1682.

0240-10-07-.04 Behavioral Expectations and Responsibilities is added to Chapter 0240-10-07-.04 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.04 Behavioral Expectations and Responsibilities

(1) The University considers the behavior described in the following sub-sections as inappropriate for the University community and in opposition to the missions and core values of the University. Any student and/or student organization found to have committed or to have attempted to commit any of the following misconduct is subject to the sanctions outlined in 0240-10-07-.05 Disciplinary Outcomes.

(2) “Harassment” for both University policy and Title IX purposes means conduct that satisfies one or more of the following:

(a) An employee of the University conditioning the provision of an aid, benefit, or service of the recipient on an individual’s participation in unwelcome sexual conduct;

(b) Unwelcome conduct on the basis of a protected class determined by a reasonable person to be so severe, pervasive, and objectively offensive that it effectively denies a person equal access to the University’s education program or activity; or

(c) “Sexual assault” as defined in 20 U.S.C. 1092(f)(6)(A)(v), “dating violence” as defined in 34 U.S.C. 12291(a)(10), “domestic violence” as defined in 34 U.S.C. 12291(a)(8), or “stalking” as defined in 34 U.S.C. 12291(a)(30).

Statutory Authority: T.C.A. § 49-8-203(a)(1)(D).

0240-10-07-.05 Disciplinary Outcomes is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.05 Disciplinary Outcomes

(1) General Rules

(a) Purposes of sanctions. The purposes of sanctions include, but are not limited to:

(1) To educate the Respondent about appropriate conduct;

(2) To promote the personal and professional development of the Respondent;

(3) To repair harm to the Complainant, University, and/or Community;

(4) To discourage the Respondent and other students from violating the Behavioral Expectations and Responsibilities; and

(5) To protect other members of the University community.

(2) The sanctions imposed on a Respondent should be proportional to the Respondent's misconduct and appropriate for the particular case based on the gravity of the offense (including, without limitation, how the violation affected or reasonably could have affected other members of the University community). Consideration may also be given to the Respondent's conduct record; whether the Respondent acted in self-defense, and, if so, whether the amount of force used was reasonable under the circumstances; and other aggravating or mitigating factors.

(3) Administrative and Developmental Sanctions. A student who accepts responsibility or is found responsible for violating the Behavioral Expectations and Responsibilities generally will be given one (1) or more administrative sanctions. A student may also be given one (1) or more developmental sanctions.

(4) Administrative Sanctions

(a) Warning. A warning is a written notice to a student that informs the student that the student has violated the Behavioral Expectations and Responsibilities, that the misconduct must cease and/or not reoccur, and that further misconduct may result in the imposition of more serious sanctions.

(b) Disciplinary Probation. Disciplinary probation is imposed for a specified period of time during which the student may continue to be enrolled but must demonstrate conduct that conforms to the Behavioral Expectations and Responsibilities. Conditions may be placed on the student's continued enrollment. A student may be placed on disciplinary probation for moderate misconduct or in the case of repeated minor misconduct. Also, a student allowed to re-enroll following a suspension will be placed on disciplinary probation. Subsequent violations of the Behavioral Expectations and Responsibilities during a period of disciplinary probation may result in more serious sanctions such as suspension or expulsion from the University.

(c) Deferred Suspension. A deferred suspension is a designated period of time during which a student, while continuing to be enrolled, is given an opportunity to demonstrate the ability to abide by the Behavioral Expectations and Responsibilities. A student may be placed on deferred suspension for serious misconduct or in the case of repeated misconduct. If the student is found responsible for any additional violation(s) of the Behavioral Expectations and Responsibilities while the student is on deferred suspension, then the sanction of suspension will be the minimum sanction that will be imposed in a Formal Hearing on the subsequent misconduct. Students who are placed on deferred suspension are also generally given developmental sanctions.

(d) Suspension. A suspension is an official separation of a student from the University for a specific period of time and/or until certain conditions are met. A suspension may be

imposed for serious misconduct and/or for a violation of deferred suspension. Suspension may include conditions that must be satisfied prior to a student being allowed to re-enroll and/or conditions that will be in place if the student is allowed to re-enroll. The effective date of a suspension may be imposed retroactively to the date that the misconduct occurred. While suspended, the student loses all University rights and privileges (e.g., enrollment privileges), shall not represent the University in any official manner, and shall not be present on University-controlled property without the prior approval of the Dean of Students. The student may be required to meet with an assigned Student Life staff member periodically while suspended to ensure the student is making satisfactory progress regarding the developmental sanctions issued. The Dean of Students will determine whether the student is eligible for consideration for re-enrollment by the University's admissions office(s). Students who are permitted to return to the University following a period of suspension will automatically be placed on disciplinary probation by OSA for a designated period of time, which is designed to facilitate a smooth transition back to the University community. A student on post-suspension disciplinary probation must abide by the Behavioral Expectations and Responsibilities and all terms and conditions placed on the student's re-enrollment.

(e) Expulsion. Expulsion is a sanction that permanently bars a person from re-enrolling as a student at the University. This sanction generally is imposed when the student's misconduct is deemed so serious as to warrant total and permanent disassociation from the University community without the possibility of re-enrollment; and/or when, by the student's repeated misconduct, a student has exhibited a blatant disregard for the health, safety, or welfare of other members of the University community or the University's right to establish rules of conduct. A person who has been expelled shall not be present on University-controlled property without the prior approval of the Dean of Students.

(f) Withholding of Degree. The University may withhold a degree as a disciplinary sanction for a specified period of time or until the student's completion of all other sanctions imposed, whichever occurs later.

(g) Revocation of Degree. The sanction of the revocation of a degree may be imposed if a student has obtained a degree at least in part through cheating, plagiarism, other academic dishonesty, or through research misconduct. Revocation of a degree shall be approved by the University President before the revocation is effective. If approved by the President, this sanction will be noted on the student's academic transcript on a permanent basis.

(h) Disciplinary Probation for student organizations. A student organization given the sanction of disciplinary probation is permitted to retain University student organization registration on a probationary status. As a condition of the disciplinary probation, the student organization also may be given developmental sanctions. Disciplinary sanctions imposed on a student organization may be applicable to members of such organization.

(i) Social Probation for student organizations. Social probation prohibits a student organization from sponsoring or participating in specified social activities. While on social probation, a student organization may not host social events or participate in University-affiliated activities. Any exceptions to social probation must be approved, in advance, by the Dean of Students.

(j) Deferred Suspension for student organizations. A deferred suspension is a designated period of time during which a student organization, while continuing to be active, is given an opportunity to demonstrate the ability to abide by the Behavioral Expectations and Responsibilities. A student organization may be placed on deferred suspension for serious misconduct or in the case of repeated misconduct. If the student organization is found responsible for any additional violation(s) of the Behavioral Expectations and Responsibilities while the student organization is on deferred suspension, then the sanction of revocation or suspension of University registration will be the minimum sanction that will be imposed in a Formal Hearing on the subsequent misconduct. Student organizations who are placed on deferred suspension generally also receive disciplinary probation and developmental sanctions.

(k) Revocation or Suspension of University Registration. In cases of serious or repeated misconduct, a student organization's University registration may be suspended or revoked.

(5) Developmental Sanctions. In addition to an administrative sanction(s), one (1) or more of the following developmental sanctions may be imposed in an effort to foster student learning and development.

(a) Educational Activities. Educational activities are designed to educate the student about why certain conduct was inappropriate. Examples of such activities include, without limitation, offering a formal apology (in writing and/or in person); attending an educational class, training, or workshop; giving or attending a presentation; preparing and submitting a research project or paper on a designated topic; or offering a written reflection responding to a prompt given by OSA.

(b) Restitution. Restitution is compensation for loss, damage, and/or injury incurred as a result of the student's behavior. Compensation may take the form of money, service, and/or material replacement. Restitution may be required to be made to the University, a specific individual, or a specific organization. Normally, all restitution must be paid or made within two (2) weeks of the imposition of the sanction.

(c) Supervised Work/Service. A student may be assigned unpaid work or service that is both beneficial to the University community and/or likely to assist the student in understanding the effects of the student's conduct.

(d) Loss or Restriction of Privileges. Specified student privileges are lost or restricted. Such privileges include, without limitation, representing the University in any official manner, the use of or access to University-controlled property, University parking privileges, University owned housing, or participation in University-affiliated activities (e.g. extracurricular activities).

(e) University Housing Reassignment or Removal. A student may be assigned to a different residence hall or residence hall room. A student's residence hall contract also may be terminated, and the student may be prohibited from residing in University housing for a definite or indefinite period of time.

(f) Mandatory Education. A student may be required to participate in one (1) or more educational programs, classes, or workshops relating to the student's misconduct, including, without limitation, education concerning alcohol or drugs. The student may be

held responsible for the payment of expenses relating to the educational program/class/workshop(s).

Statutory Authority: T.C.A. § 49-8-203(a)(1)(D).

0240-10-07-.06 Reporting, Evaluation and Dismissal of Sexual Harassment Complaints is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.06 Reporting, Evaluation and Dismissal of Student Sexual Harassment Complaints

(1) Any person may report sexual harassment (whether or not the person reporting is the person alleged to be the victim of conduct that could constitute sexual harassment), in person, by mail, by telephone, or by electronic mail, using the contact information listed for the Title IX Coordinator, or by any other means that results in the Title IX Coordinator receiving the person's verbal or written report.

(2) Upon receipt of a formal complaint, the University will provide parties with a written notice of the grievance process, including any informal resolution process(es), and written notice of the allegations potentially constituting sexual harassment, including sufficient details known at the time and with sufficient time to prepare a response before any initial interview.

(3) The Title IX Coordinator will evaluate the formal complaint to determine whether the conduct as alleged could qualify as a Title IX violation. Matters not meeting the Title IX jurisdictional requirements will be dismissed for Title IX purposes but may still be investigated pursuant to University policy.

(4) The Title IX Coordinator may consolidate formal complaints as to allegations of sexual harassment against more than one (1) respondent, or by more than one (1) complainant against one (1) or more respondents, or by one (1) party against the other party, where the allegations of sexual harassment arise out of the same facts or circumstances.

(5) The University may dismiss a sexual harassment complaint upon notice from a complainant that s/he would like to withdraw the complaint, when the respondent is no longer enrolled or employed at the University, or where there is insufficient evidence to reach a determination. Written notice of any dismissal and reasons for dismissal will be provided to both the complainant(s) and respondent(s). Dismissals of sexual harassment complaints are subject to the appeals provisions of 0240-10-07-.08.

Statutory Authority: T.C.A. § 49-8-203(a)(1)(D); 20 U.S.C. § 1682.

0240-10-07-.07 Investigations of Sexual Harassment Complaints is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.07 Investigations of Student Sexual Harassment Complaints

(1) The Office for Institutional Equity will investigate all student sexual harassment complaints whether they arise under Title IX or University policy.

(2) If, in the course of an investigation, the University decides to investigate allegations about the complainant or respondent that are not included in the initial written notice, the University will provide notice of the additional allegations to the parties whose identities are known.

(3) Any party whose participation is invited or expected, will be provided written notice of the date, time, location, participants, and purpose of all investigative interviews, or other meetings with a party, with sufficient time for the party to prepare to participate.

(4) Prior to completion of the investigative report, each party and the party's advisor, if any, will receive, in an electronic format or a hard copy, the evidence collected by the investigator that is directly related to the allegations.

(5) The parties will have ten (10) business days to submit a written response to be considered by the investigator prior to completion of the investigative report.

(6) After the elapse of ten (10) business days or receipt of the parties' written responses, whichever is longer, the University will issue an investigative report that fairly summarizes relevant evidence.

Statutory Authority: T.C.A. § 49-8-203(a)(1)(D); 20 U.S.C. § 1682.

0240-10-07-.08 Live Hearings, Appeals and Informal Resolution of Sexual Harassment Complaints is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.08 Live Hearings, Appeals and Informal Resolution of Sexual Harassment Complaints

(1) Live Hearings of Sexual Harassment Complaints.

(a) No sooner than ten (10) days after the issuance of the investigative report, the University will conduct a live hearing regarding the allegations of sexual harassment. Live hearings may be conducted with all parties physically present in the same geographic location or, at the University's discretion or the request of a party, any or all parties, witnesses, and other participants may appear at the live hearing virtually, with technology enabling participants simultaneously to see and hear each other.

(b) Within ten (10) business days prior to a live hearing, the University will provide both parties with written notice of the following:

(i) The time, place, date of the hearing, and electronic access information, if applicable.

(ii) The name of each witness the University expects to present at the hearing and those the University may present if the need arises.

(iii) The right to request a copy of the investigative file.

(iv) The right to request copies of all documents, copies of all electronically stored information, and access to tangible evidence that the University has in its possession, custody, or control and may use to support claims or defenses.

(v) The policies and procedures applicable to the live hearing which shall comply with all of the requirements of 34 C.F.R. § 106.45(b)(6) as well as the requirements of Tenn. Code Ann. § 49-7-1701 et seq.

(c) Within fifteen (15) days after the conclusion of the live hearing, the decision-maker(s) will issue a written determination simultaneously to the complainant and respondent regarding responsibility, using a preponderance of the evidence standard. The written determination will include:

(i) Identification of the allegations potentially constituting sexual harassment;

(ii) A description of the procedural steps taken from the receipt of the formal complaint through the determination, including any notifications to the parties, interviews with parties and witnesses, site visits, methods used to gather other evidence, and hearings held;

(iii) Findings of fact supporting the determination;

(iv) Conclusions regarding the application of the University's policy, and, if applicable, code of conduct to the facts;

(v) A statement of, and rationale for, the result as to each allegation, including a determination regarding responsibility, any disciplinary sanctions the University imposes on the respondent, and whether remedies designed to restore or preserve equal access to the University's education program or activity will be provided to the complainant; and

(vi) The University's procedures and permissible bases for the complainant and/or respondent to appeal.

(d) The determination regarding responsibility becomes final either on the date that the University provides the parties with the written appeal decision, if an appeal is filed, or if an appeal is not filed, the date on which an appeal would no longer be considered timely.

(2) Appeals of Determination of Responsibility or Dismissal of Formal Complaint

(a) Both parties may appeal a determination regarding responsibility or the dismissal of a formal complaint or any allegations therein, only on the following bases:

(i) Procedural irregularity that affected the outcome of the matter;

(ii) New evidence that was not reasonably available at the time the determination regarding responsibility or dismissal was made and that could affect the outcome of the matter; and

(iii) The Title IX Coordinator, investigator(s), or hearing officer had a conflict of interest or bias for or against complainants or respondents generally or the individual complainant or respondent that affected the outcome of the matter.

(b) A party wishing to appeal a determination regarding responsibility or the dismissal of a formal complaint or any allegations therein must file a written appeal with the Office of Student Accountability within ten (10) business days of the date of the determination or the dismissal. The written appeal must identify the basis or bases for the appeal and explain with specificity the facts supporting the basis or bases of the appeal.

(c) Within ten (10) days of receipt of an appeal, the University will:

(i) Notify the non-appealing party in writing that an appeal has been filed;

(ii) Provide both parties with information about the policies and procedures applicable to the appeal that are in compliance with 34 C.F.R. 106.45(b)(8);

(d) Within a reasonable time, the decision-maker(s) will issue a written appeal decision describing the result of the appeal and the rationale for the result. The written appeal decision will be provided simultaneously to both parties.

(3) Informal Resolution. The University will not require the parties to participate in an informal resolution process and may not offer an informal resolution process unless a formal complaint is filed. Further, informal resolution is not available to resolve allegations that an employee sexually harassed a student. However, at any time prior to reaching a determination regarding responsibility, the University may facilitate an informal resolution process, such as mediation, that does not involve a full investigation and adjudication, as long as the parties provide their voluntary, written consent to the informal resolution process.

(a) In order to facilitate the informal resolution process the University must provide the parties with:

(i) A written notice disclosing the allegations;

(ii) The requirements of the informal resolution process including the circumstances under which it precludes the parties from resuming a formal complaint arising from the same allegations; and

(iii) Any consequences resulting from participating in the informal resolution process, including the records that will be maintained or could be shared.

(b) At any time prior to agreeing to an informal resolution, any party has the right to withdraw from the informal resolution process and resume the grievance process with respect to the formal complaint.

Statutory Authority: 20 U.S.C. § 1682; T.C.A. § 49-7-1701 et seq.

0240-10-07-.09 Rights of Involved Parties is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.09 Rights of Involved Parties

(1) Parties shall have the right to equitable provision of grievance procedures and the University will follow its grievance process before the imposition of any disciplinary sanctions or other actions that are not supportive measures against a respondent.

(2) The University will ensure that the burden of proof and the gathering of evidence sufficient to reach a determination regarding responsibility rests on the University and not a complainant or respondent.

(3) The University will require an objective evaluation of all relevant evidence – including both inculpatory and exculpatory evidence – and prohibit credibility determinations based on a person's status as a complainant, respondent, or witness.

(4) In cases involving a crime of violence or harassment, the University will provide parties an equal opportunity to inspect and review any evidence obtained as part of the investigation that is directly related to the allegations raised in a complaint, including the evidence upon which the University does not intend to rely in reaching a determination regarding responsibility and inculpatory or exculpatory evidence whether obtained from a party or other source, so that each party can meaningfully respond to the evidence prior to conclusion of the investigation.

(5) The University will provide the complainant and respondent with the same opportunities to have others present during any grievance proceeding, including the opportunity to be accompanied to any related meeting or proceeding by the advisor of their choice, who may be, but is not required to be, an attorney.

(a) The University will not limit the choice or presence of advisor for either the complainant or respondent in any grievance proceeding; however, the University may establish restrictions regarding the extent to which the advisor may participate in the proceedings, as long as the restrictions apply equally to both parties and are allowed by applicable law.

(6) The University will ensure that staff involved in disciplinary matters are appropriately trained as required by state and federal law.

(7) The University will not presume that the respondent is responsible for the alleged conduct until a determination regarding responsibility is made at the conclusion of the grievance/disciplinary process.

(8) During proceedings, neither the complainant nor the respondent will be required to subject to questioning or disclose evidence or information that is protected under a legally recognized privilege, unless the person holding such privilege has waived the privilege.

(9) The parties have a right to a student conduct process that is free from conflicts of interest or bias.

(a) A University employee shall not act on behalf of the University in the student conduct process in any case in which: (1) the employee is a Complainant or a witness; (2) the employee serves in an advisory or supervisory capacity to the Complainant and/or Respondent or student organization; or (3) the employee determines, for any other reason (e.g., personal prejudice or bias), that he/she cannot be fair or impartial.

(b) In cases involving allegations of sexual harassment, the process will include protections for the Respondent analogous to, and no less protective than, the conflict of interest provisions of Tennessee Code Annotated § 4-5-303.

Statutory Authority: TCA § 49-7-1703; T.C.A. 49-7-122; 20 U.S.C. § 1682.

0240-10-07-.10 Interim Administrative Actions, Emergency Removals, Disciplinary Holds, and Records is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.10 Interim Administrative Actions, Emergency Removals, Disciplinary Holds and Records

(1) In certain situations, the University may impose interim administrative actions prior to the conclusion of the student conduct process. The University shall determine the appropriate interim administrative actions based on the totality of the circumstances. Examples of interim administrative actions include, without limitation, a no-contact directive, a disciplinary hold, interim restrictions, and/or emergency removal.

(2) No-Contact Directive. In cases involving allegations of assault, injury, sexual misconduct, relationship violence, stalking, retaliation or in other cases where there is reason to believe continued contact between a student and specific persons may interfere with those persons' security, safety or ability to participate effectively in work or studies, the University may issue a written instruction to a student, called a no-contact directive, that prohibits a student from having verbal, physical, written, and/or electronic contact with specific other persons for a definite or indefinite period of time. A no-contact directive also may prohibit a student from being present on designated University-controlled property. Any student, faculty or staff member, or other person with a reasonable justification may request that a no-contact directive be issued to a student.

(3) Disciplinary Hold. The Respondent's academic record (including, without limitation, the release of the Respondent's official or unofficial transcript), degree, ability to register for classes, and/or ability to re-enroll may be placed on disciplinary hold by OSA or by another appropriate University office at the request of OSA for the following reasons: (1) A student's leave of absence or withdrawal from the University during the pendency of any disciplinary matter accompanied by the student's refusal to participate in the disciplinary process or (2) a student's failure to satisfy the terms and conditions of disciplinary sanctions received (the hold shall be released after the terms and conditions have been satisfied). No diploma shall be given and no grades, academic credit, or degree shall be awarded to a student who has been placed on disciplinary hold. A letter from OSA will accompany the transcript of a student who is requesting their transcripts be sent to another academic institution while having a disciplinary hold, detailing that the student has a disciplinary hold.

(4) Interim Restrictions. Generally, the status of a student alleged to have violated the Behavioral Expectations and Responsibilities is not affected until the conclusion of the student conduct process. However, the Dean of Students may impose interim restrictions prior to the conclusion of the student conduct process related to the alleged misconduct when the Dean of Students has reasonable cause to believe that (1) a Respondent's continued presence on University-controlled property or at University-affiliated activities poses a significant risk of substantial harm to the health, safety, or welfare of others or to property or (2) poses an imminent or ongoing threat to the disruption of, or interference with, the normal operations of the University. Interim restrictions shall be confirmed by notice to the Respondent that explains the basis for the interim restrictions and shall remain in effect until the conclusion of the student conduct process, which should be completed without undue delay. Within three (3) days of the imposition of the interim restrictions, the Respondent shall be offered an opportunity to appear before the Dean of Students in order to discuss the following issues only: (1) the reliability of the information concerning the Respondent's conduct; and (2) whether the conduct and surrounding

circumstances reasonably indicate that the Respondent's continued presence on University controlled property or at University-affiliated activities poses a significant risk of substantial harm to the health, safety, or welfare of others or to property or poses an imminent or ongoing threat of disruption of or interference with the normal operations of the University. Examples of interim restrictions include, without limitation, restricting the student's privileges to participate in University affiliated activities, restricting the student's privileges to access University-controlled property, and University owned housing removal and/or reassignment. Restrictions contained within no-contact directives are not interim restrictions.

(5) Emergency Removal. If there is an immediate threat to the physical health or safety of any student(s) or other individual(s) arising from allegations of misconduct under this code as determined by an individualized safety and risk analysis, a respondent may be removed on an emergency basis from the University by the Dean of Students. An emergency removal is an official separation of the student from the University until the conclusion of the student conduct process or the emergency removal is lifted, whichever occurs first. While the emergency removal is in effect, the respondent loses all University rights and privileges (e.g., enrollment privileges) except for the rights and privileges to contest the allegations pursuant to the Student Code, shall not represent the University in any official manner, and shall not be present on University-controlled property or participate in University affiliated activities without the prior approval of the Dean of Students. When placed on emergency removal, the respondent may be assigned a grade of "W" or "I," whichever is deemed appropriate by the faculty member involved. A Respondent who violates the terms of an emergency removal shall be subject to further disciplinary action and may be treated as a trespasser. An emergency removal shall be confirmed by notice to the respondent that explains the basis for the emergency removal and shall remain in effect until the conclusion of the student conduct process, which should be completed without undue delay. Within three (3) days of the imposition of an emergency removal, the respondent shall be offered an opportunity to appear before the Dean of Students in order to challenge the emergency removal decision.

(6) Maintenance of Student Disciplinary Records. The University maintains student disciplinary records separately from student academic records.

(a) Disclosure of Student Disciplinary Records while a Student is enrolled.

(i) While a student is enrolled in the University, OSA may disclose disciplinary records to University officials who have a legitimate educational interest in the disciplinary records, or to students who request to inspect their disciplinary records. OSA may disclose disciplinary records to other persons only in accordance with state or federal law and in some circumstances will be required by state or federal law to disclose disciplinary records (e.g., subpoena, judicial order).

(ii) While a student is still enrolled in the University but applying for post-graduation employment, transfer, or graduate school, OSA will disclose a student's disciplinary records to persons outside of OSA if the student requests that the information be shared. Notwithstanding the previous sentence, OSA will disclose disciplinary records as required by state or federal law (e.g., subpoena, judicial order).

(b) Disclosure of Student Disciplinary Records after a student is no longer enrolled.

(i) After a student is no longer enrolled in the University, OSA will disclose a student's disciplinary records to persons outside of OSA only if the student requests that the information be shared (e.g. for the purpose of transferring schools, attending graduate or professional school, to seek admission into a State Bar, completing pre-employment background screenings, etc.). Notwithstanding the previous sentence, OSA will disclose disciplinary records as required by state or federal law (e.g., subpoena, judicial order).

Statutory Authority: T.C.A. § 49-8-203(a)(1)(D); T.C.A. § 47-7-1703(e).

0240-10-07-.11 Amnesty for Good Samaritans and those seeking Emergency Aid is added to Chapter 0240-10-07 Student Code of Rights and Responsibilities and shall read as follows:

0240-10-07-.11 Amnesty for Good Samaritans and those seeking Emergency Aid

(1) For Complainants. The University provides amnesty to complainants who may be hesitant to report to University/College officials because they fear that they themselves may be accused of minor policy violations, such as underage drinking, at the time of the incident. Educational options will be explored, but no conduct proceedings or conduct record will result.

(2) For Those Who Offer Assistance. To encourage students to offer help and assistance to others, University pursues a policy of amnesty for minor violations when students offer help to others in need. At the discretion of the Dean of Students, amnesty may also be extended on a case-by-case basis to the person receiving assistance. Educational options will be explored, but no conduct proceedings or conduct record will result.

(3) For Those Who Report Serious Violations. Students who are engaged in minor violations but who choose to bring related serious violations by others to the attention of the University are offered amnesty for their minor violations. Educational options will be explored, but no conduct proceedings or record will result. Abuse of amnesty requests can result in a decision by the Dean of Students not to extend amnesty to the same person repeatedly.

(4) Safe Harbor. The University has a Safe Harbor rule for students. The University believes that students who have a drug and/or addiction problem deserve help. If any University student brings their own use, addiction, or dependency to the attention of University officials outside the threat of drug tests or disciplinary sanctions and seeks assistance, a conduct complaint will not be pursued. A written action plan may be used to track cooperation with the Safe Harbor program by the student. Failure to follow the action plan will nullify the Safe Harbor protection and campus conduct processes will be initiated.

Statutory Authority: 20 U.S.C. § 1682; T.C.A. 49-8-203(a)(1)(D).

The University of Memphis	GE2039 - Interim Sexual Harassment & Sexual/Gender-Based Misconduct Policy
	Issued: 08/14/2020
POLICIES	**Responsible Official:** Chief Compliance Officer
	Responsible Office: Office for Institutional Equity

Purpose

This policy is adopted by the University of Memphis specifically to address: 1) sexual harassment as defined by Title IX of the Education Amendments of 1972 and its implementing regulations which includes dating violence, domestic violence, sexual assault, and stalking; and 2) sexual/gender-based misconduct as defined by University policy. The University of Memphis prohibits conduct that constitute sexual harassment and sexual/gender-based misconduct. The University is committed to eliminating all acts of sexual harassment and sexual/gender-based misconduct on its campus. Any allegation of sexual harassment as defined herein will be investigated and adjudicated according to this policy and its corresponding procedures and in compliance with Title IX of the Education Amendments of 1972, the Higher Education Act, and the Violence Against Women Reauthorization Act of 2013, as well as the regulations implementing these Acts.

Conduct falling outside of the definition of sexual harassment as set forth by Title IX and its implementing regulations may still constitute a violation of the University's policy against sexual/gender-based misconduct. Such conduct will still be addressed by the University using the same procedures applicable to Title IX based sexual harassment.

Nothing in this policy prohibits the Title IX Coordinator, or their designee, from determining what conduct constitutes sexual harassment under Title IX and its implementing regulations and what conduct constitutes sex/gender-based misconduct under University policy.

Definitions

Advisor: Any person selected by the parties to provide assistance during meetings, interviews, hearings, or any phase of the University's grievance process. The University will not limit a parties' choice of advisor. A party is required to use an advisor to ask the opposing party and any witnesses all relevant questions during hearings. If a party does not have an advisor during this phase of the process, the University will provide one free of charge.

Appeal: The process by which any party to the University's sexual harassment grievance process can request a reconsideration of the findings and/or sanctions issued by a hearing panel.

Campus Security Authority: A University official who has significant responsibility for student and campus activities, including, but not limited to, student housing, student discipline, and campus judicial proceedings. All Campus Security Authorities are required to report to the Title IX Coordinator any knowledge they may have of conduct covered by this policy.

Complainant An individual who is alleged to be the victim of conduct that could constitute sexual harassment.

Consent: Means an informed decision, freely given, made through mutually understandable words or actions that indicate a willingness to participate in mutually agreed upon activity. Consent cannot be given by an individual who is asleep; unconscious; or incapacitated, either through the effect of drugs/alcohol or for any other reason; or is under duress, threat, coercion, or force. Past consent does not imply present or future consent. Silence or an absence of resistance does not imply consent. Consent can be withdrawn at any time.

Dating Violence: Violence committed by a person:

1. Who is or has been in a social relationship of a romantic or intimate nature with the complainant; and
2. Where the existence of such a relationship shall be determined based on a consideration of the following factors:
    (a) The length of the relationship.
    (b) The type of the relationship.
    (c) The frequency of interaction between the persons involved in the relationship.

Domestic Violence: Felony or misdemeanor crimes of violence committed by:

1. A current or former spouse or intimate partner of the complainant;
2. A person with whom the complainant shares a child in common;
3. A person who is cohabitating with or has cohabitated with the complainant as a spouse or intimate partner;
4. A person who is similarly situated to a spouse of the complainant under the domestic or family violence laws of the jurisdiction receiving grant monies; or
5. Any other person against an adult or youth who is protected from that person's acts under the domestic or family violence laws of the jurisdiction.

Formal Complaint: A document filed by a complainant or signed by the Title IX

	Coordinator alleging sexual harassment against a respondent and requesting that the University investigate the allegation of sexual harassment. A formal complaint may be filed with the Title IX Coordinator in person, by mail, by electronic mail or by submission to the official University complaint reporting system.
Grievance Process:	The formal means of resolving complaints of sexual harassment and sexual/gender-based misconduct. The grievance process includes all meetings, interviews, conferences, hearings and appeals that occur during the resolution of a complaint.
Incapcitation:	The inability to make rational reasonable judgments as a result of the use of alcohol, other drugs, being asleep, unconscious, or in a state of blackout. Incapacitation is a state beyond drunkenness or intoxication in which a person is unable to make fully informed judgments or have an awareness of consequences.
Informal Resolution:	A process by which the complainant and respondent agree to resolve a complaint. The informal resolution process is designed to assure fairness, facilitate communication and maintain an equitable balance of power between the parties. Informal resolutions are facilitated by the Title IX Coordinator or his/her designee.
Investigator:	An official designated by the Title IX Coordinator to conduct investigations of sexual harassment under this policy, the Student Conduct Code, and any other applicable University policies.
Notice:	University provided email is the official form of communication. When notice is transmitted by email, the notice is effective on the date that the email is sent. In situations where no University provided email is available or active, notice will be given in writing and transmitted by United States mail and or hand delivery to the address on file. When notice is transmitted by United States mail, the notice is effective on the date that it is mailed. When notice is hand delivered, it is effective on the date of delivery. Parties must notify the University of updated contact information throughout the grievance process.
Party:	Either the complainant or the respondent. References in this Policy to the plural “parties” includes complainant and respondent.
Preponderance of The Evidence:	The standard by which the University will determine at a hearing whether a violation of this policy has occurred. Preponderance of the evidence is also referred to as “more likely than not” that a violation of policy did or did not occur. This standard applies for all complaints of sexual harassment under this Policy.

Report: Any communication by any person to the Office for Institutional Equity of the occurrence of conduct that could constitute sexual harassment or sexual/gender-based misconduct.

Reporter: Any person communicating to the Office for Institutional Equity of an occurrence of conduct that could constitute sexual harassment or sexual/gender-based misconduct.

Respondent: An individual who has been reported to be the perpetrator of conduct that could constitute a violation under this Policy.

Retaliation: Any action taken against a person because that person has reported an alleged violation of this policy or because that person has filed a complaint, served as a witness, assisted, participated or refused to participate in an investigation or grievance process. This includes action taken against a bystander who intervened to stop or attempt to stop sexual harassment as defined in this policy. Retaliation includes intimidating, threatening, or coercing an individual because of the individual's complaint or participation.

Sexual Assault: An offense classified as a forcible or nonforcible sex offense under the uniform crime reporting system of the Federal Bureau of Investigation, which includes:

1. Sex Offenses, Forcible: Any sexual act directed against a complainant, without the consent of the complainant including instances where the complainant is incapable of giving consent.

(a) Forcible Rape: The carnal knowledge of a person, forcibly and/or against that person's will or not forcibly or against the person's will in instances where the victim is incapable of giving consent because of his/her temporary or permanent mental or physical incapacity.

(b) Forcible Sodomy: Oral or anal sexual intercourse with another person, forcibly and/or against that person's will or not forcibly or against the person's will in instances where the victim is incapable of giving consent because of his/her youth or because of his/her temporary or permanent mental or physical incapacity.

(c) Sexual Assault With An Object: To use an object or instrument to unlawfully penetrate, however slightly, the genital or anal opening of the body of another person, forcibly and/or against that person's will or not forcibly or against the person's will in instances where the victim is

incapable of giving consent because of his/her youth or because of his/her temporary or permanent mental or physical incapacity.

(d) Forcible Fondling: The touching of the private body parts of another person for the purpose of sexual gratification, forcibly and/or against that person's will or not forcibly or against the person's will in instances where the victim is incapable of giving consent because of his/her youth or because of his/her temporary or permanent mental or physical incapacity.

2. Sex Offenses, Nonforcible: Unlawful, nonforcible sexual intercourse.

(a) Incest: Nonforcible sexual intercourse between persons who are related to each other within the degrees wherein marriage is prohibited by law.

(b) Statutory Rape: Nonforcible sexual intercourse with a person who is under the statutory age of consent.

Sexual Exploitation: Occurs when a person makes non-consensual or unjust sexual advantages toward another person for their own advantage or benefit, or to benefit another person other than the one being exploited. Any act that extends the bounds of consensual sexual activity with or without the knowledge of the other individual for any purpose, including but not limited to sexual gratification, financial gain, or personal benefit. Examples include:

1. Non-consensual streaming, audio or video recording, photographing, or transmitting intimate or sexual utterances, sounds, or images without consent of all parties involved;
2. Allowing others to view sexual acts (whether in person or via a video camera or other recording device without consent of all parties involved;
3. Engaging in voyeurism without consent, even if the act itself is consensual;
4. Prostituting an individual;
5. Knowingly exposing an individual to sexually transmitted diseases without the individual's knowledge;
6. Inducing incapacitation for the purpose of making an individual vulnerable to non-consensual sexual activity.

Sexual/Gender-Based Misconduct: Any conduct on the basis of sex or gender that satisfies one or more of the following:

1. An employee of the University conditioning the provision of an aid, benefit, or service on an individual's participation in unwelcome sexual conduct;

2. Unwelcome conduct determined by a reasonable person to be severe, pervasive, or objectively offensive that it denies a person equal access to the University's educational programs or activities; or

3. Any conduct that constitutes sex/gender-based discrimination, sexual assault, dating violence, domestic violence, stalking, or sexual exploitation as defined in this policy.

Sexual Harassment: For purposes of Title IX of the Education Amendments of 1972, sexual harassment is any conduct on the basis of sex that satisfies one or more of the following:

1. An employee of the University conditioning the provision of an aid, benefit, or service on an individual's participation in unwelcome sexual conduct;

2. Unwelcome conduct determined by a reasonable person to be so severe, pervasive, and objectively offensive that it effectively denies a person equal access to the University's educational programs or activities; or

3. "Sexual assault" as defined in 20 U.S.C. 1092(f)(6)(A)(v), "dating violence" as defined in 34 U.S.C. 12291(a)(10), "domestic violence" as defined in 34 U.S.C. 12291(a)(8), or "stalking" as defined in 34 U.S.C. 12291(a)(30).

Stalking: Engaging in a course of conduct directed at a specific person that would cause a reasonable person to: (1) fear his or her safety or the safety of others; or (2) suffer substantial emotional distress.

Title IX Coordinator The official responsible for oversight and coordination of the University's educational programs and training efforts for the University community with regard to sexual harassment. The Title IX Coordinator, conducts or oversees investigations and, in conjunction with the Dean of Students, Human Resources and Academic Affairs, has the authority to implement all interim and supportive measures deemed appropriate. The Title IX Coordinator may delegate investigatory responsibility to Deputy Title IX Coordinators who are also authorized to implement

appropriate interim measures. The Title IX Coordinator receives annual training on topics related to responding to or investigating allegations of sexual misconduct and is the University official responsible for overseeing the institution's response to sexual misconduct reports and complaints, and for addressing any patterns or systemic issues identified by such reports and complaints.

Policy

I. APPLICABILITY

This policy is applicable to the following individuals:

A. Title IX sexual harassment: For a complaint to be evaluated as a Title IX sexual harassment complaint, the following criteria must be met:

1. The complainant must be a current employee or student who has been subjected to sexual harassment as defined by Title IX and its implementing regulations;

2. The complainant must be a former student or employee who was subjected to sexual harassment if the conduct took place during the time of enrollment or employment at the University of Memphis, the conduct has a reasonable connection to the institution and the former student or employee is attempting to access the programs or benefits of the University;

3. The respondent must be a current employee or student or otherwise affiliated with the University such that the University exercises substantial control over the respondent's access to or participation in its programs or activities.

B. University sexual/gender-based misconduct: For a complaint to be evaluated as University sexual/gender-based misconduct, the following criteria must be met:

1. The complainant must be a current or former employee, student, or individual who has been subjected to sex/gender-based misconduct while accessing or attempting to access the University's programs or activities;

2. The respondent must be a current employee or student or otherwise affiliated with the University such that the University exercises substantial control over the respondent's access to or participation in its programs or activities.

II. TRAINING OF UNIVERSITY PARTIES:

All University employees or designees involved in the investigation or adjudication of alleged violations of this policy will receive annual training on issues related to sexual harassment, domestic violence, dating violence, sexual assault, and stalking and the process for conducting an investigation and hearing that protects the safety of and promotes accountability of members of the University community. All training will be conducted in an unbiased and objective manner and will prepare those involved in the sexual harassment grievance process to serve impartially.

III. GEOGRAPHICAL SCOPE

The University will exercise Title IX jurisdiction over reports or complaints when the parties fall into the categories as defined above in section II. A. ***and*** the conduct occurred in the United States and at locations, events, or circumstances over which the University exercised substantial control over both the respondent and the context in which the sexual harassment occurred. This also includes any building owned or controlled by a student organization that is officially recognized by the University. Additionally, the University will exercise Title IX jurisdiction over any sexual harassment that occurs via the use of University computers, internet networks, digital platforms, and computer hardware or software owned or operated by, or used in the operations of the University.

Factors that will be considered when determining geographical jurisdiction include, but are not limited to whether the University funded, promoted, or sponsored the event or circumstance where the alleged harassment occurred.

Sexual harassment that occurs outside of the University's Title IX geographical scope will be addressed as sexual/gender-based misconduct under this or other University policies. The University reserves the right to determine the appropriate policy under which to investigate complaints.

IV. RETALIATION

University of Memphis employees and students are strictly prohibited from retaliating, intimidating, threatening, coercing, or otherwise discriminating against any individual for exercising

their rights or responsibilities under any provision of this policy. Retaliation will result in disciplinary measures, up to and including separation from the University. Anyone who believes they have been retaliated against because they have exercised their rights under this policy should immediately make a report to the Office for Institutional Equity.

V. THE IMPORTANCE OF CONSENT/THE IMPACT OF ALCOHOL & OTHER DRUGS

Although defined above, it is important for all to understand the significance of consent. Consent is an affirmative decision to engage in mutually acceptable sexual activity given by clear actions or words. It is an informed decision made freely and actively by all parties. Relying solely upon nonverbal communication can lead to miscommunication. For example, silence or an absence of resistance does not imply consent. It is important not to make assumptions; if confusion or ambiguity on the issue of consent arises anytime during a sexual interaction, it is essential that each participant stops and clarifies, verbally, willingness to continue. Parties should understand that consent may not be inferred from silence, passivity, or lack of active resistance alone. Furthermore, a current or previous dating or sexual relationship is not sufficient to constitute consent, and consent to one form of sexual activity does not imply consent to other forms of sexual activity. Consent can be withdrawn at any time. Being intoxicated does not diminish one’s responsibility to obtain consent.

The use of alcohol or other drugs can have unintended consequences. Alcohol or other drugs can lower inhibitions and create an atmosphere of confusion over whether consent is freely and effectively given. A person who is incapacitated is unable to give consent. The perspective of a reasonable person similarly situated to the complainant and, in consideration of the context of the behavior, will be the basis for determining whether one should have known about the impact of the use of alcohol or drugs on another’s ability to give consent. Being intoxicated or high is never an excuse for sexual harassment.

VI. CONSENSUAL RELATIONSHIPS

The prior existence of a consensual relationship does not preclude a complainant from filing a complaint alleging a violation of this policy. Circumstances change and conduct that was previously welcome may become unwelcome. Even when both parties have consented at the outset to a romantic or sexual involvement, this past consent may not remove grounds for a later charge of a violation of policies.

For more information regarding the University's position on consensual relationships refer to HR5055 - Nepotism and Personal Relationships, and GE2021 - Conflict of Interest.

VII. IMMEDIATE ASSISTANCE AND PRESERVATION OF EVIDENCE

A. Safety: The University recognizes that deciding whether to report sexual harassment, sexual assault, dating/domestic violence, or stalking (to the University and/or to the police) and deciding how to proceed if and when a report has been filed (including deciding whether and when to pursue a University complaint) can be a decision-making process that unfolds over time.

Whatever steps a complainant ultimately decides to take, in the immediate aftermath of sexual harassment, sexual assault, domestic violence, dating violence or similar events, the most important thing is for the complainant to get to a safe place.

B. Seeking Medical Attention: When a feeling of safety has been achieved, the complainant should seek medical attention, regardless of his or her decision to report the crime to the police. It is very important for the complainant of sexual assault to seek medical attention immediately. Such screening, at the option of the complainant, may include screening for sexually transmitted diseases pregnancy date rape drugs, emergency contraception, and psychological comfort and counseling and treatment for any physical injuries. Forensic rape kits and examinations can only be obtained at:

Shelby County Rape Crisis Center
1060 Madison Avenue
Memphis, TN 38104
(901) 222-3950
https://www.shelbycountytn.gov/737/Crime-Victims-Rape-Crisis-Center

A complainant has the right to accept or decline any or all parts of a medical exam. However, critical evidence may be lost or missed if not collected or analyzed.

C. Physical Evidence: Valuable physical evidence can be obtained from the complainant and the complainant's clothing. A complainant should make every effort to save anything that might contain the offender's DNA. Therefore, a complainant should not:

- Bathe or shower;

- Wash his/her hands;
- Brush his/her teeth;
- Use the restroom;
- Change clothes;
- Comb hair;
- Clean up the area where the incident took place; or
- Move anything the offender may have touched

Even if the complainant has not yet decided to report the crime, receiving a forensic medical exam and keeping the evidence safe from damage will improve the chances that the police can access and test the stored evidence at a later date should the complainant decide to prosecute.

D. Other Evidence: Complainants reporting sexual harassment or sexual/gender-based misconduct are encouraged to preserve verbal, written and photographic evidence by saving notes, emails, text messages, instant messages, social networking pages, other communications, pictures, logs or other copies of documents that might be useful to investigators.

VIII. REPORTING SEXUAL HARASSMENT & SEXUAL/GENDER-BASED MISCONDUCT

The University of Memphis is committed to providing a variety of accessible means to encourage complainants, witnesses and bystanders to report incidents of sexual harassment. In addition to making a report to a Campus Security Authority as defined in this policy, a complaint can be filed directly with the following University offices:

Title IX Coordinator	Office of Institutional Equity 156 Administration Building (901) 678-2713 http://www.memphis.edu/oie/
University Police Services	Main Campus: 100 Zach Curlin Parking Garage 901-678-HELP (emergency); 901-678-3848 (non-emergency) Police@memphis.edu Lambuth Campus: 731-425-1942 (emergency) Lambuthpolice@memphis.edu
Electronic Complaint form	https://www.memphis.edu/oie/complaint.php

Email Written Complaints	oie@memphis.edu
Office of Legal Counsel	201 Administration Building (901) 678-2155 legal@memphis.edu

ALL CAMPUS SECURITY AUTHORITIES, AS DEFINED IN THIS POLICY, HAVE A DUTY AND RESPONSIBILITY TO REPORT ANY INCIDENT OF SEXUAL HARASSMENT OR SEXUAL/GENDER-BASED MISCONDUCT THAT THEY RECEIVE OR OF WHICH THEY BECOME AWARE TO THE OFFICE FOR INSTITUTIONAL EQUITY.

Even those who are not obligated by this policy, are strongly encouraged to report information regarding any incident of sexual harassment or sexual/gender-based misconduct to the Title IX Coordinator or a Campus Security Authority. Public awareness events or other forums, including social media and class discussions, in which students disclose incidents of sexual harassment are not considered reports or notice to the University of sexual harassment or sexual/gender-based misconduct for purposes of triggering its obligation to investigate any incident(s).

IX. DISCIPLINARY AMNESTY FOR COMPLAINANTS AND WITNESSES

Anyone who is under the influence of alcohol or drugs during an incident of sexual harassment or sexual/gender-based misconduct should not be reluctant to seek assistance for fear of being sanctioned. The Office of Student Accountability will generally not pursue disciplinary violations against a student (or against a witness) for minor violations of the code if the student is making a good faith report of sexual misconduct. This practice only applies to amnesty from violations of the University's Code of Student Rights and Responsibilities.

It does not grant amnesty for criminal, civil, or legal consequences for violations of federal, state, or local law. Further, excluded from this grant of immunity are all students accused of encouraging or voluntarily participating in the sexual misconduct incident.

Employee actions will be evaluated on a case by case basis to determine if any amnesty will be granted.

X. PRIVACY & CONFIDENTIALITY

The University of Memphis encourages complainants to report sexual harassment and sexual/gender-based misconduct so

they can get the support they need and so that the University can respond appropriately. As such, reports to the Office for Institutional Equity, University Police Services, or a Campus Security Authority are not confidential. Additionally, all reports of sexual harassment or sexual/gender-based misconduct made to University Police will be referred to the Title IX Coordinator for review and investigation even if the complainant declines to pursue criminal charges. The University shall not share personally identifiable information with law enforcement without the complainant's consent, or unless the complainant has also reported the incident to law enforcement.

The University of Memphis will keep reports as private as possible and will only disclose information to the extent necessary to provide interim and supportive measures or to fully investigate the complaint. The provisions below detail the confidentiality options available to individuals.

A. Confidential Resources: The following resources hold statutorily protected confidentiality that prohibits the release of an individual's information without that individual's express consent (except under limited circumstances that pose an imminent danger to the individual or to others.):

1. The University considers reports made to the University's Victim Services Coordinator as confidential and protected from disclosure during any internal investigation. (These individuals are considered Campus Security Authorities for the purpose of the Clery Act and have an obligation to report crimes under the Clery Act. No personally identifiable information will be included in the report.)

2. Reports to professional licensed counselors (including the University's Counseling Center) or to professional medical healthcare providers (including the University's Student Health Center) are confidential to the extent allowed by law.

Counselors and doctors will maintain confidentiality of any such reports unless required by law or court order to disclose information. For example, Tennessee's mandatory reporting law related to abuse of minors, imminent harm to others, or subpoenas for testimony may require disclosure of all information received. Counselors and doctors, acting in their capacity as a healthcare provider, affiliated with the University of Memphis, may assist the party in receiving other necessary protection and support, such as victim advocacy, academic support or accommodations, disability, health or mental health services, and changes to living, working or course schedules.

In some cases, providing requested assistance might require the counselor or doctor to reveal identifying information to other individuals. Written permission from the complainant to reveal the minimum information necessary to arrange requested assistance will be obtained prior to disclosure. Any person who speaks to a counselor or doctor and chooses not to disclose the sexual harassment or authorize a report to be made on their behalf must understand that a request for confidentiality may prevent the University from pursuing disciplinary action against the alleged respondent(s).

B. Parallel investigations with local law enforcement: Some forms of sexual harassment or sexual/gender-based misconduct may be criminal in nature, and a complainant may choose to file a report with law enforcement. If a complainant makes a report to University Police alleging that any degree of rape has occurred on University property, University Police is required to notify the Memphis Police Department. In the case of an alleged rape, University Police will lead the investigation and will cooperate in every respect with the investigation conducted by the Memphis Police Department. T.C.A. § 49-7-129.

C. Requests for No Action: If a complainant discloses an incident to a Campus Security Authority or the Office of Institutional Equity but requests that no investigation be conducted or disciplinary action taken, the University will weigh that request against its obligation to provide a safe, non-discriminatory environment for all students, including the complainant. However, if the University honors the request that no action be taken the complainant should understand that the University's ability to meaningfully respond and implement corrective action may be limited.

The Title IX Coordinator will evaluate a complainant's request for no action and will consider a range of factors, including the increased risk that the alleged respondent could commit additional acts of sexual harassment, sexual/gender-based misconduct or other misconduct; whether there have been other sexual harassment or sexual/gender-based misconduct complaints about the same alleged respondent; whether the alleged respondent has a history of arrests or records from a prior school indicating a history of misconduct; whether the alleged respondent threatened further sexual harassment, sexual/gender-based misconduct or other misconduct against the complainant or others; whether the sexual harassment, sexual/gender-based misconduct was committed by multiple perpetrators; whether the sexual harassment, sexual/gender-based misconduct was perpetrated with a weapon; whether the complainant is a minor; whether the University possesses other means to obtain relevant evidence of the alleged sexual

harassment or sexual/gender-based misconduct; or whether the complainant's report reveals a pattern of perpetration at a given location or by a particular group. The presence of one or more of these factors could lead the University to investigate and, if appropriate, pursue disciplinary actions. If none or only a limited number of these factors is present, the University will make best efforts to respect the complainant's request that no action be taken. If the University determines that it cannot accommodate the complainant's request, the Title IX Coordinator will inform the complainant prior to starting an investigation and will, to the extent possible, only share information with people responsible for handling the University's response.
A complainant or respondent will not be required to participate in any investigation or disciplinary proceeding.

XI. SUPPORTIVE MEASURES

All parties are entitled to supportive measures regardless of whether a complaint is filed or whether an investigation is conducted. Parties may also request supportive measures as an accommodation. Examples of such supportive actions include, but are not limited to:

- Restrictions on contact between the complainant and the respondent;
- Exclusion from areas of campus;
- Providing an escort to ensure that the complainant or respondent can move safely between classes, meeting and activities;
- Ensuring that the complainant and respondent do not attend the same classes or other necessary appearances;
- Moving the complainant or respondent to a different residence hall;
- Providing counseling services;
- Providing medical services;
- Providing academic support services such as tutoring;
- Arranging for the complainant or respondent to re-take a course or withdraw from a class without penalty, including ensuring that any changes do not adversely affect the complainant's academic record.

XII. EMERGENCY REMOVAL AND ADMINISTRATIVE LEAVE

In situations that require immediate action to address safety or other concerns, the University will take any reasonable administrative action that is appropriate. Students may be subject to Emergency Removal pending the outcome of the investigation under the appropriate circumstances. Emergency Removal will only be exercised after an individualized safety

and risk analysis determines that an imminent risk of the physical health or safety of any person, arising from the sexual harassment allegations.

Similarly, in appropriate circumstances and consistent with University Human Resource policies, employees may be placed on administrative leave pending the outcome of the investigation.

In such situations, the Office of Institutional Equity, in conjunction with the Dean of Students, Human Resources, and the Office of the Provost are responsible for implementing the interim measure(s) after consultation with the Office of Legal Counsel.

XIII. COMPLAINT RESOLUTION

All proceedings will include a prompt, fair, and impartial investigation. Complainants and respondents will be treated with respect before, during, and after the conclusion of the process. The University shall provide the respondent and complainant equitable rights during the investigative and institutional hearing processes as further described in this policy. All respondents are presumed not responsible for violations of this policy until a finding has been made at the conclusion of the grievance process.

All proceedings within the sexual harassment and sex/gender-based misconduct grievance process (investigations, meetings, hearings, and disciplinary actions) shall be conducted by officials who do not have a conflict of interest or bias for/against the complainant or the respondent. Both the complainant and respondent may object to the impartiality of any University official involved in the grievance process by submitting written notice to the University's Title IX Coordinator. In cases where the objectivity of the Title IX Coordinator is questioned, the complaint may be submitted to the University's Office of Legal Counsel. It will be the responsibility of the Title IX Coordinator (or Legal Counsel when the Title IX Coordinator is the concerned party) to determine if there is evidence that suggests that the concern has merit and to identify a suitable alternative University official to serve. Both the complainant and respondent will be informed of any such actions.

A. Reporting Title IX Sexual Harassment: Any person may *report* sexual harassment (whether or not the person reporting is the person alleged to be the victim of conduct that could constitute sexual harassment). Only the victim of sexual harassment or the Title IX Coordinator may *file a formal complaint* whether in person, by mail, by telephone, or by electronic mail, using the contact information listed for the Title

IX Coordinator, or by any other means that results in the Title IX Coordinator receiving the person's verbal or written report.

B. Reporting Sexual/Gender-Based Misconduct: Any person may report or file a complaint of sexual/gender-based misconduct. Upon receiving a report, the Office for Institutional Equity will evaluate the report to determine if the alleged conduct meets the definition of sexual/gender-based misconduct; and if so, will proceed as described below. If the conduct, as alleged, does not constitute sexual/gender-based misconduct but implicates another University policy, the report will be forwarded to the appropriate University office for further action.

C. Complaint/Report Evaluation: Upon receipt of a formal Title IX sexual harassment complaint or a sexual/gender-based misconduct report, the University will provide parties with a written notice of the grievance process, including the informal resolution process(es), and written notice of the allegations potentially constituting sexual harassment or sexual/gender-based misconduct, including sufficient details known at the time and with sufficient time to prepare a response before any initial interview.

1. The Title IX Coordinator will evaluate formal Title IX complaints to determine whether the conduct as alleged could qualify as a Title IX violation. Matters not meeting the Title IX jurisdictional requirements will be dismissed for Title IX purposes and will proceed as a sexual/gender-based misconduct complaint if applicable.

2. The Title IX Coordinator may consolidate Title IX sexual harassment complaints or sexual/gender-based misconduct complaints when the allegations are against more than one (1) respondent, or by more than one (1) complainant against one (1) or more respondent, or by one (1) party against the other party, where the allegations of sexual harassment arise out of the same facts or circumstances.

3. The University may dismiss a Title IX sexual harassment complaint or sexual/gender-based misconduct complaint upon notice from a complainant that s/he would like to withdraw the complaint, when the respondent is no longer enrolled, employed or affiliated with the University, or where there is insufficient evidence to reach a determination. Written notice of any dismissal and reasons for dismissal will be provided to both the complainant(s) and respondent(s). Either party may appeal the University's dismissal of a formal complaint.

D. Informal Resolution: At any time prior to a determination regarding responsibility, the parties may opt to participate in an informal resolution. The Office of Institutional Equity may facilitate an informal resolution process, such as mediation, that does not involve a full investigation and adjudication, as long as the parties provide their voluntary, written consent to the informal resolution process. Informal resolution is not available in cases where physical violence is alleged or where the complainant is a student and the respondent is an employee.

The University will not require the parties to participate in an informal resolution process. For purposes of Title IX sexual harassment, the University may not offer an informal resolution process unless a formal complaint is filed.

1. In order to facilitate the informal resolution process the University will provide the parties with:

(a) A written notice disclosing the allegations;

(b) The requirements of the informal resolution process including the circumstances under which the parties are prohibited from re-filing a formal complaint with respect to the same allegations; and

(c) Any consequences resulting from participating in the informal resolution process, including the records that will be maintained or could be shared.

2. At any time prior to agreeing to an informal resolution, any party has the right to withdraw from the informal resolution process and resume the grievance process with respect to the formal complaint.

E. Investigation: The Office for Institutional Equity will investigate all Title IX sexual harassment complaints and all sexual/gender-based misconduct complaints. Any party whose participation is invited or expected, will be provided written notice of the date, time, location, participants, and purpose of all investigative interviews, or other meetings with a party, with sufficient time for the party to prepare to participate.

Prior to completion of the investigative report, each party and the party's advisor, if any, will receive, in an electronic format or a hard copy, the evidence collected by the investigator that is directly related to the allegations. The parties will have ten (10) business days to submit a written response to be considered by the investigator prior to completion of the investigative report.

After the elapse of ten (10) business days or receipt of the parties' written responses, whichever is longer, the investigator will issue an investigative report that fairly summarizes the investigation including relevant evidence. The investigator will not make any findings as to the credibility of the parties or witnesses nor will the investigator make a recommendation regarding whether a violation of this policy occurred.

F. Hearings: All hearings conducted pursuant to this policy will be live and in real time. No sooner than ten (10) business days after the issuance of the final investigative report, the University will conduct a hearing regarding the allegations of sexual harassment or sexual/gender-based misconduct. Live hearings may be conducted with all parties physically present in the same geographic location or, at the University's discretion or the request of a party, any or all parties, witnesses, and other participants may appear at the live hearing virtually, with technology enabling participants simultaneously to see and hear each other.

At least ten (10) business days prior to the hearing the parties will be provided with the date, time and location of the hearing, access to or copies of the investigative file, and names of all witnesses expected to appear at the hearing. The parties will also be provided with the names of the hearing panelist(s) for review and to enable parties to raise any objections as to the panelist(s) objectivity.

At the conclusion of the hearing, the hearing panel will deliberate to determine if University policy was violated. The hearing panel will evaluate responsibility using a preponderance of the evidence standard. Decisions of the hearing panel will be by majority vote.

Within fifteen (15) days of the conclusion of the hearing, the hearing panel chair will notify the parties, Title IX Coordinator, and the applicable office as determined by the respondent's status with the University, of the panel's decision in the form of a written determination. The determination will be provided simultaneously to both parties.

The University reserves the right to conduct hearings during any official University breaks, including but not limited to the summer months.

G. Advisors: The complainant and respondent shall be provided with the same opportunities to have an advisor, of their choosing, present during any proceeding at which their presence is required or expected such as meetings with staff, the Investigator, informal resolution proceedings or hearings.

The advisor's role in any meeting is limited to quietly conferring with their advisee through written or verbal communication.

During hearings, the advisor's role is to ask the other party and any witnesses all relevant questions and follow up questions, including those challenging credibility. Cross examination of the opposing party MAY NOT be conducted by the parties themselves. If a party does not have access to an advisor, the University will provide one for the purpose of conducting cross examination on the party's behalf.

Parties should notify the Office for Institutional Equity of their choice of advisor as soon as possible. Advisors are expected to follow the University's rules of decorum throughout each stage of the grievance process. Failure to follow the rules of decorum will result in the advisor being barred from further participation in that stage of the process.

H. Appeals: Within ten (10) days following the Office of Institutional Equity's dismissal of a Title IX formal complaint, a report or complaint of sexual/gender-based misconduct or the receipt of the hearing panel's determination of responsibility, the parties will be provided with notice of their appeal rights which are dependent on whether the complaint was investigated as a Title IX sexual harassment complaint or a sexual/gender-based misconduct complaint.

1. If the matter was investigated as a Title IX sexual harassment complaint, either party may appeal only on the following bases:

   a. Procedural irregularity that affected the outcome of the matter;

   b. New evidence that was not reasonably available at the time the determination regarding responsibility or dismissal was made and that could affect the outcome of the matter; and

   c. The Title IX Coordinator, investigator(s), or hearing officer had a conflict of interest or bias for or against complainants or respondents generally or the individual complainant or respondent that affected the outcome of the matter.

2. If the matter was investigated as a sexual/gender-based misconduct complaint, the parties will be notified of their appeal rights in accordance with applicable law.

Within ten (10) days of receipt of an appeal, the University will notify the non-appealing party that an appeal has been filed and provide both parties with the name of the individual hearing the appeal. Either party may raise objections as to the appeal officer(s)' objectivity. Within a reasonable time, the appeal officer (s) will issue a written appeal decision describing the result of the appeal and the rationale for the result. The written appeal decision will be provided simultaneously to both parties.

Revision Dates

[List revision dates here]

Subject Areas:

Academic	Finance	General	Human Resources	Information Technology	Research	Student Affairs
☐	☐	☒	☒	☐	☐	☒

6. Strategic Update of Research Development

Presentation

Presented by Jasbir Dhaliwal

The University of Memphis Board of Trustees

Recommendation

Presentation

Date: August 27, 2020

Committee: Academic Research and Student Success

Presentation: Strategic Update on Research Development

Presented by: Jasbir Dhaliwal, Executive Vice President of Research and Innovation

Background:

A strategic update on the University's research and development efforts.

Strategic Update on Research Development

Academic, Research and Student Success Committee

Jasbir Dhaliwal, PhD, Professor of Information Systems
Executive Vice President - Research & Innovation

Board of Trustees

SEPTEMBER 2020

Reorganization and Realignment

Division Objective

- Increase Research Expenditures
- Service Faculty
- Grow Research Capacity

Execution Strategies

- Grow Research Talent Pipeline
- Enable Research Development
- Enhance Research Collaboration
- Improve Key Metrics

Strategic Research Goal For University of Memphis:

Achieve Carnegie R1 Status

Strategy #1: Grow Research Talent Pipeline

THE UNIVERSITY OF MEMPHIS | Board of Trustees

Supporting Programs Launched

(last 18 months)

- NSF CAREER Academy
- DoD Young Investigator Program
- UMRF Professorships
- Springer Nature Copy and Scientific Review
- PACE Postdoc Program
- Carnegie R1 Doctoral Fellows
- NSF Grad Fellows Program
- First Gen STEM Fellowship Program

Evidence of Success

- Jr. Faculty Proposal Submissions: up 27% (55)
- UofM Postdoc Count: up 236% (37)
- UofM Staff Researchers: up 307% (57)
- NSF CAREER Awards: 3
- DoE Early Career Award: 1st
  - All Early Career Awardees receive UMRF Junior Professorships
- Highest ever # of grant submissions by Postdocs (15)
- 48 new PhD students funded

Strategy #2: Enable Research Development

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Supporting Programs Launched

(last 18 months)

- Academic Analytics
- *The Conversation*
- Arts, Humanities, & Social Science Funding
- Gap Funding Program
- DoD Research Academy
- Red Team Proposal Review Service
- DoE Research Academy (Fall 2020)
- Research Equipment Database

Evidence of Success

- 1st institutional gap funding program
- 1st institutional subvention program
- 100,000+ reads of UofM Conversation authors in FY20
- 30 research development grants totaling $250,000
- 33 faculty exploring 1st time DoD research
- Externally reviewed grants totaling $10million

Strategy #3: Enhance Research Collaboration

THE UNIVERSITY OF MEMPHIS | Board of Trustees

Supporting Programs Launched

(last 18 months)

- Czech Academy of Sciences (CAS) partnership
- UofM Research Council
- Community of Research Scholars (CoRS)
- UTHSC-UofM CORNET
- External Reviewer Support
- DoD Research Program ID Service
- Centers, Institutes, & Bureaus (CIBs) support
- P2P Postdoctoral Fellowships

Evidence of Success

- 1st U.S. Institution partner for CAS
- 4 new companies started in partnership with Epicenter
- 7 collaboration grants with UTHSC
- 19 CoRS funded including faculty from 40 disciplines
- 7 FedEx Institute of Technology Advanced Research Clusters funding 80 faculty across campus

Strategy #4: Improve Key Metrics

• HERD Research Expenditures:	$66,579,868.00	↑ 20%
• NSF Awards:	$8,125,554.00	↑ 212%
• FY2020 Total Award Dollars:	$38,824,786.52	↑ 18%
• # of PI with Total Awards ≥ $500K:	26	↑ 85%
• Single Awards ≥ $250K:	49	↑ 36%
• Federal Research Dollars:	$29,650,120.54	↑ 50%
• Proposal Submissions:	596	↓ -2%*

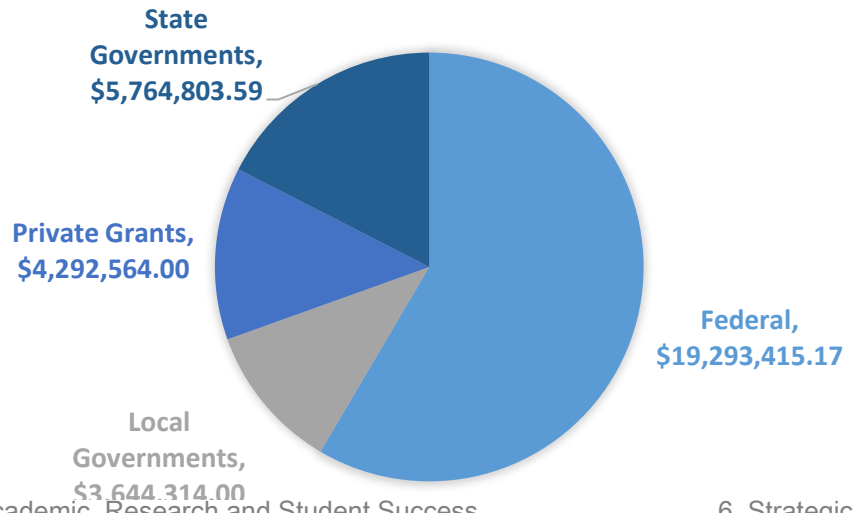
* Proposal Submissions remaining stable with last year after a 20% increase from the year before indicating larger AWARD SIZES given other metrics.

* Institutional Review Board: Average protocol review time for FY19 = 8.12 calendar days and FY20 = 6.74 calendar days

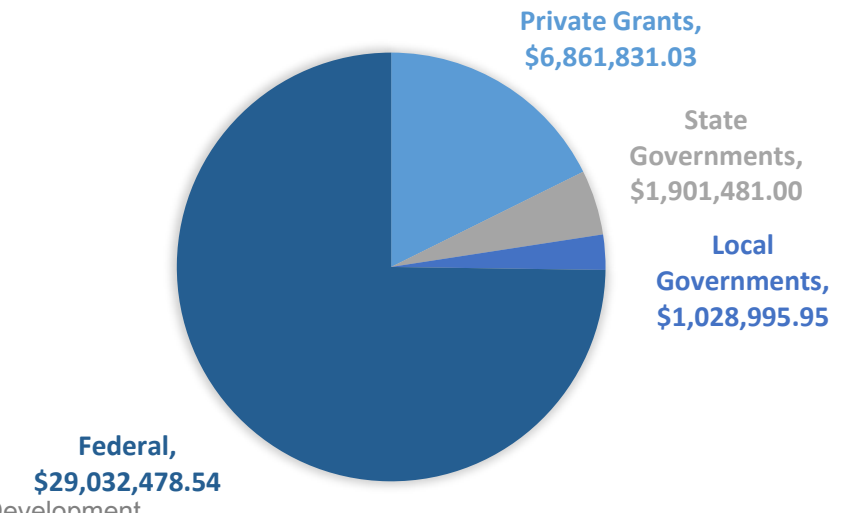
Strategy #4: Improve Key Metrics

- Total Award Count – Up 13%
- Total Award Dollars – Up 18%
- Total Federal Award Dollars – Up 50%

FY19 Research Awards:
$32,995,096.76



FY20 Research Awards:
$38,824,786.52



Cultivating a Dynamic Research Ecosystem

- UMRF Research Park
- UMRF Ventures
- Phi Kappa Phi Innovation in Excellence Award Semifinalist
- **AASCU Award**
- **APLU Innovation Award Finalist**
- 11 Licensed Technologies

Some Recent Successes & Carnegie R1 Status

mHealth Center for Discovery, Optimization & Translation of Temporally-Precise Interventions (mDOT) *Santosh Kumar (Dept. of Computer Science, MD2K)*	*NIH*	**$6,037,892.00**
Mid-South Social Work Scholarships for Disadvantaged Students (MSW-SDS) *Susan Neely-Barnes (Social Work)*	*HRSA*	**$3,180,000.00**
Supporting the Retention of Next Generation Registered Nurses (STRONG-RNs) *Eric Bailey (Loewenberg College of Nursing)*	*HRSA*	**$3,240,000.00**
The Memphis Disadvantaged Student Scholarship (MDSS) *Steven West (Counseling, Educational Psychology, and Research – CEPR)*	*HRSA*	**$2,980,000.00**
DoE Early Career: Thermodynamics and Transport Models of Strongly Coupled Dusty Plasmas *Ranganathan Gopalakrishnan (Mechanical Engineering)*	*DoE*	**$859,696.00**
Acylated Electrospun Biopolymer Membranes for Burn Wound Coverage, Infection Prevention, and Pain Relief *Amber Jennings (Biomedical Engineering)*	*DoD*	**$499,316.00**
Mdivi-1 as an Immunometabolic Regulator to Treat Atherosclerosis *Brandt Pence (College of Health Studies)*	*American Heart Association*	**$300,00.00**
Single exosome protein profiling with SERS imaging (R15) *Xiaohua Huang (Chemistry)*	*NIH*	**$291,784.00**
Identify the sources of Lead (Pb) in SCS Drinking Water to Develop Effective Remediation Practices *Maryam Salehi (Civil Engineering)*	*Shelby County Schools*	**$44,398.00**
mGuard: A Secure Real-time Data Distribution System with Fine-Grained Access Control for mHealth Research *Lan Wang (Computer Science)*	*NIH*	**$825,000.00**

***Carnegie R1 Update:* Thanks to faculty research efforts - current metrics show that the UofM is now 20 schools above the R1 cut-off in the 2018 model.**

Announcing 2020

UMRF VENTURES INC

Research Professorships

THE UNIVERSITY OF MEMPHIS Research & Innovation

NSF CAREER Recipients

Dr. Jessica Amber Jennings, Asst. Professor of Biomedical Engineering

Dr. Thomas Watson, Asst. Professor of Computer Science

DoE Early Career Recipient

Dr. Ranganathan Gopalakrishnan, Asst. Professor of Mechanical Engineering

7. Early Career Award

Presentation

Presented by Ranganathan Gopalakrishnan, Amber Jennings and Thomas Watson

The University of Memphis Board of Trustees

Recommendation

Presentation

Date: August 27, 2020

Committee: Academic Research and Student Success

Presentation: Early Career Faculty Award Presentations

Presented by: Assistant Professors, Dr. Ranganathan Gopalakrishnan, Dr. Amber Jennings, and Dr. Thomas Watson

Background:

Presentations by Early Career Faculty Awardees: Dr. Ranganathan Gopalakrishnan from Mechanical Engineering, Dr. Amber Jennings from Biomedical Engineering and Dr. Thomas Watson from Computer Science.

Early Career Award Presentations

Dr. Ranganathan Gopalakrishnan, Mechanical Engineering
Dr. Amber Jennings, Biomedical Engineering
Dr. Thomas Watson, Computer Science

Board of Trustees

SEPTEMBER 2020

Thermodynamics and Transport Models of Strongly Coupled Dusty Plasmas

Ranga Gopalakrishnan, PhD

Assistant Professor

Dept. of Mechanical Engineering

DOE Early Career Grant

- ~$750,000 over 5 years
  - September 1, 2020 – August 31, 2025
  - $150,000 per year of research expenditure
- Support 2 graduate students towards MS/PhD degrees
- Support 2 undergraduate students towards participating in research
- Support for the PI to establish collaborations and become a leader in the field

Dusty Plasmas

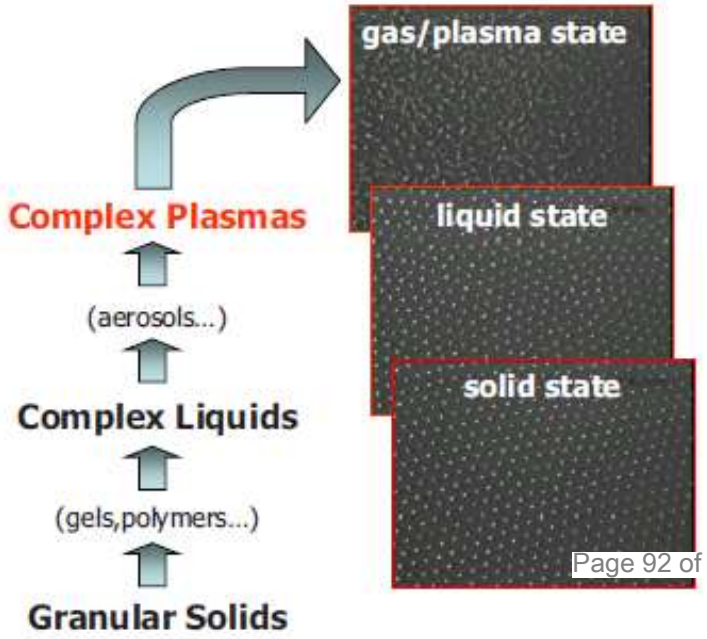
- *Electrostatically* coupled grains : "**dusty plasma**"
- Grain potential energy $\frac{\tilde{z}_p^2 e^2}{4\pi\varepsilon_o n_p^{-1/3}}$; n_p: grain conc.
- Grain "kinetic" temperature $k_B T_p = m_p \langle v_p^2 \rangle$

Courtesy: MIPSE

Electrostatic Coupling $\boldsymbol{\Gamma \equiv \frac{\tilde{z}_p^2 e^2}{4\pi\varepsilon_o n_p^{-1/3} k_B T_p}}$

$\boldsymbol{\Gamma \ll 1}$
Particle-laden gas

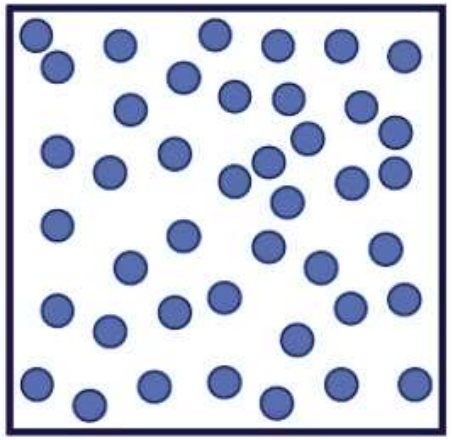
Coulombic gas→liquid→solid



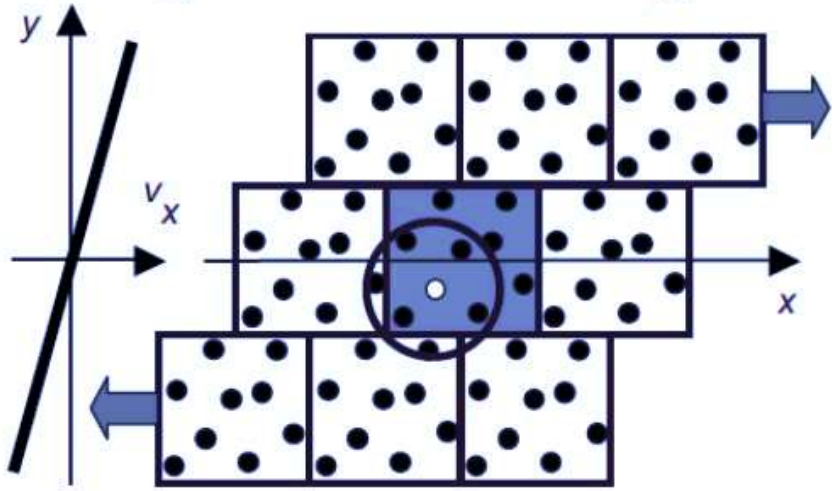
Reviews of Modern Physics, 2009. 81(4): p. 1353-1404

Simulations Of Multi-body Electrostatic Interactions

A. Equilibrium: N-body Langevin Dynamics



B. Non-equilibrium: Homogenous Shear Algorithm



Langevin Equation[3,4]

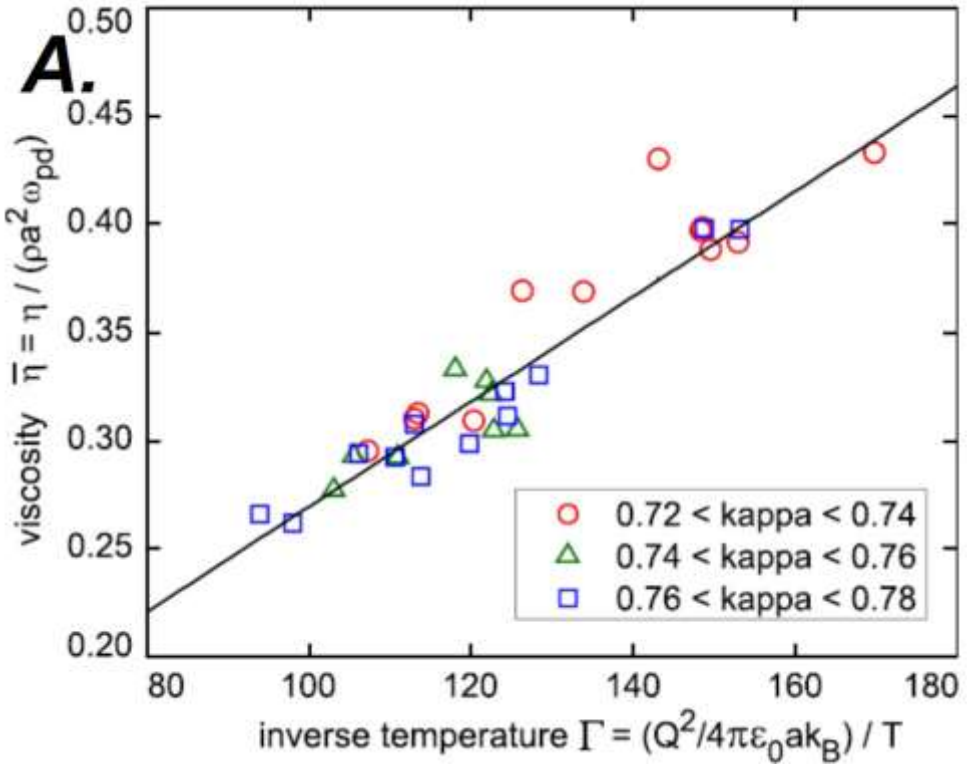
$$m_j \frac{d^2\vec{r}_j}{dt} = -\xi_j \vec{v}_j + \sum_{i=1}^{N} \vec{F}_{ij}\left(1-\delta_{ij}\right) + \vec{F}_j^{ext} + \vec{X}_j(t); \;\; j = 1, 2, \ldots, N$$

2. Ermak, D. L. & H. Buckholz (1980). *J. Computational Physics* **35**(2): 169-182.

Collaboration With Leading Experimentalists

- Dr. John Goree (The University of Iowa)
- Dr. Truell Hyde (Baylor University)
- Dr. Edward Thomas Jr. (Auburn University)
- Dr. Sergey Khrapak (German Aerospace Center)
- Dr. Justin Burton (Emory University)
- Dr. Adam Boies (Cambridge University)

The 5-year theoretical modeling effort will develop models of thermodynamics and transport properties and use published experimental data for validation



Example of experimental data of viscosity of the grain phase measured in a dusty plasma

Potential Applications and Fusion Energy Science

FY 2020 DOE Office of Science Early Career Research Program Award Abstracts (06-22-2020)

Thermodynamics and Transport Models of Strongly Coupled Dusty Plasmas

Dr. Ranganathan Gopalakrishnan, Assistant Professor
Department of Mechanical Engineering
The University of Memphis
Memphis, TN 38152

The basic aspects of correlated grain motion of relevance to strongly coupled plasmas and dense granular systems will be quantified as thermodynamic and transport models to fortify the prediction capabilities of hydrodynamic/fluid simulation approaches in order to accurately describe dust grain dynamics: (1) near the walls of thermonuclear fusion reactors where material ablation leads to the formation of highly charged nano or microparticles, (2) in planet and asteroid formation processes via accretion of charged grains and particles, and (3) of intentional or unintentional gas-to-particle conversion in plasma-based semiconductor manufacturing processes or plasma-based nanomaterial synthetic routes.

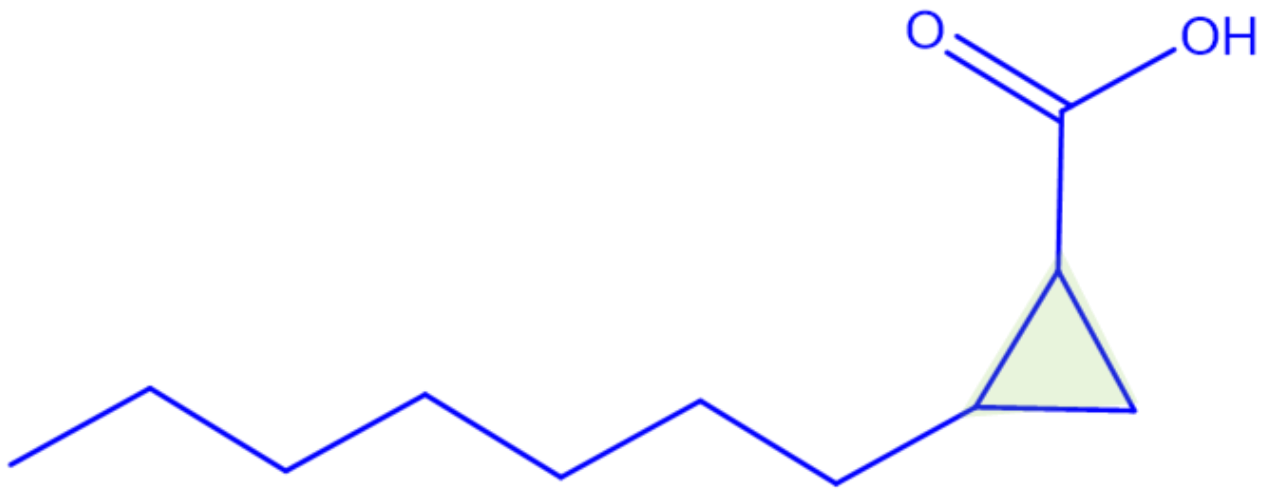
CAREER: Tethered Biofilm Dispersal Signals For Long-term Protection Of Engineering Materials

J. Amber Jennings, PhD

Department of Biomedical Engineering

Bacterial biofilm can impact implants, water pipes, food prep surfaces, and more

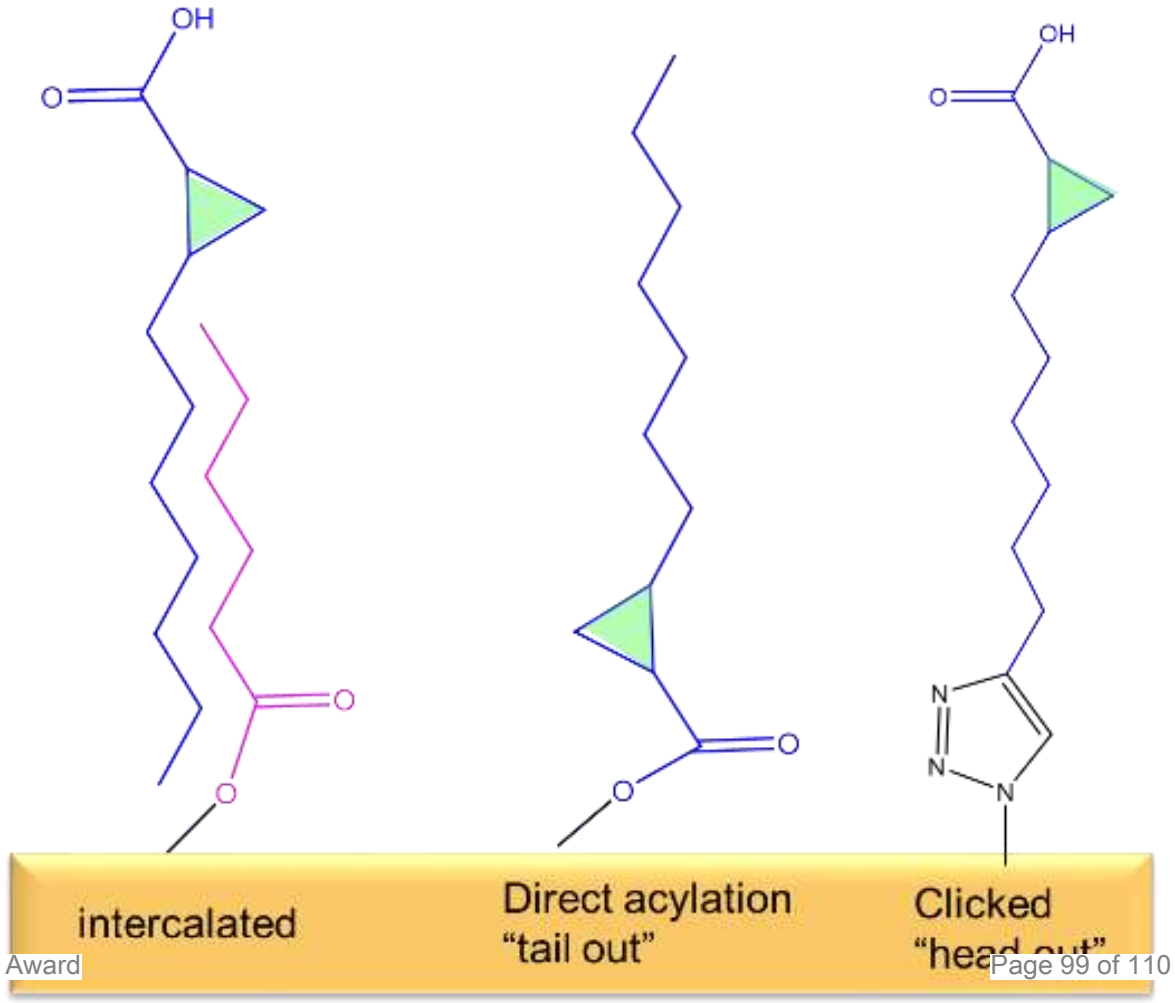
2CP is patented biofilm inhibitor



2-heptylcyclopropane-1-carboxylic acid

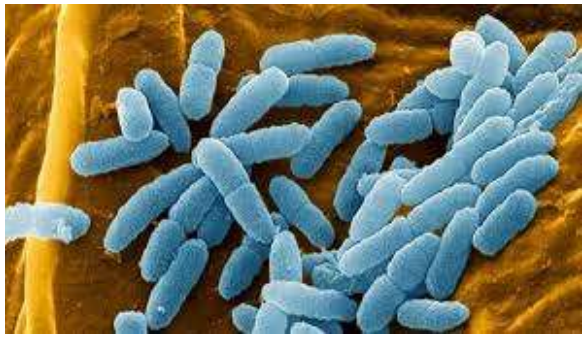
Three Research Questions

- RQ1. Can surface-bound signaling factors inhibit biofilm?
- RQ2. Can bacteria trigger the release of bound 2CP?
- RQ3. Are tethering strategies applicable to multiple types of biomaterials?

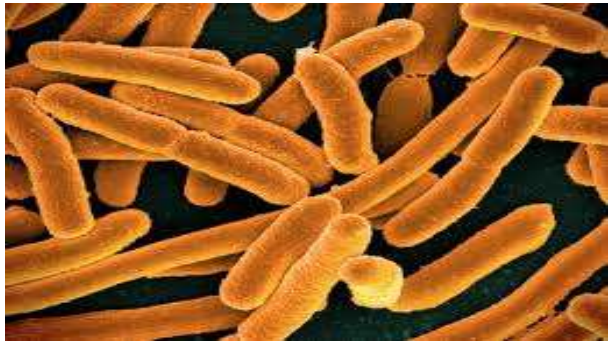


Testing plan will evaluate activity against multiple types of bacteria

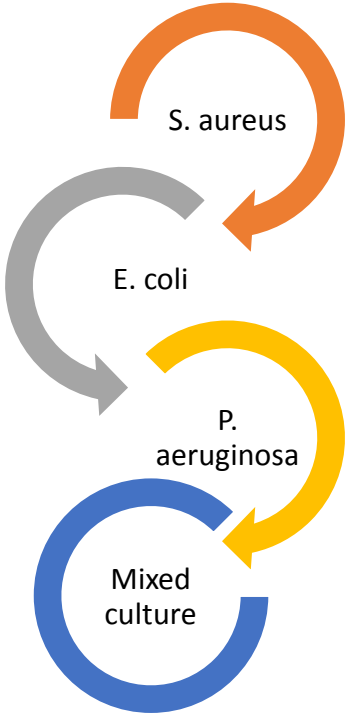
Gram positive S. aureus



Gram negative Pseudomonas aeruginosa

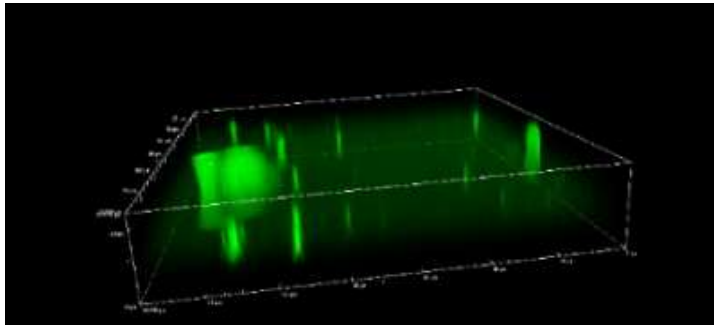


Gram negative E. coli



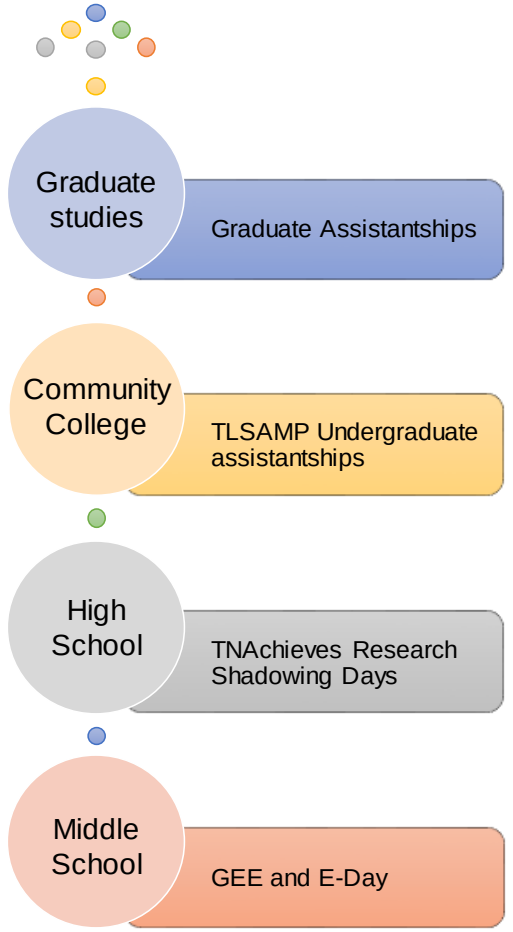
Broader Impacts

- Long term protection of surfaces
- Understanding mechanisms of biofilm inhibitors



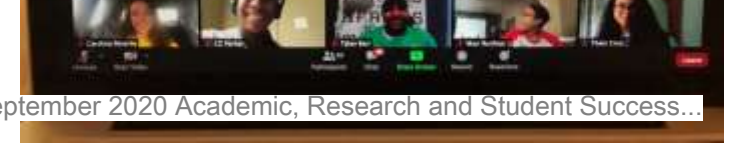
Broader Impacts—Educational plan

- E1. New course on presentation preparation
- E2. New outreach activities for K-12
- E3. Internship opportunities for Associate's degree students.



Flow diagram of "leveling up" educational plan activities.

Collaborators & Acknowledgments



Collaborator	Department	Role	Tasks
Daniel Baker, PhD	Chemistry (UM)	Synthesis of 2CP; Access to LC-MS equipment; Assist with FTIR and XPS interpretation	Fabrication and characterization
Stephanie Ivey, PhD	Director of Girls Experiencing Engineering, Civil Engineering (UM)	Coordinate biomaterials demo of project research at GEE summer camp	E1
Graham Thomas	TNAchieves Director of Outreach	Promote Research Shadowing days to TNAchieves students and mentors	E1
Amy Waddell, PhD	Coordinator, Biotechnology Technician Program; SWTCC	Assist with recruitment of Community College research assistant	E2
Richard Sweigard, PhD	Director of TLSAMP	Coordination of workshops; recruitment of cross-disciplinary undergraduate assistant	E3

Structural Communication Complexity

NSF CAREER grant, 10/2020 - 09/2025

Thomas Watson, PI

Assistant Professor of

Computer Science

Structural Communication **Complexity**

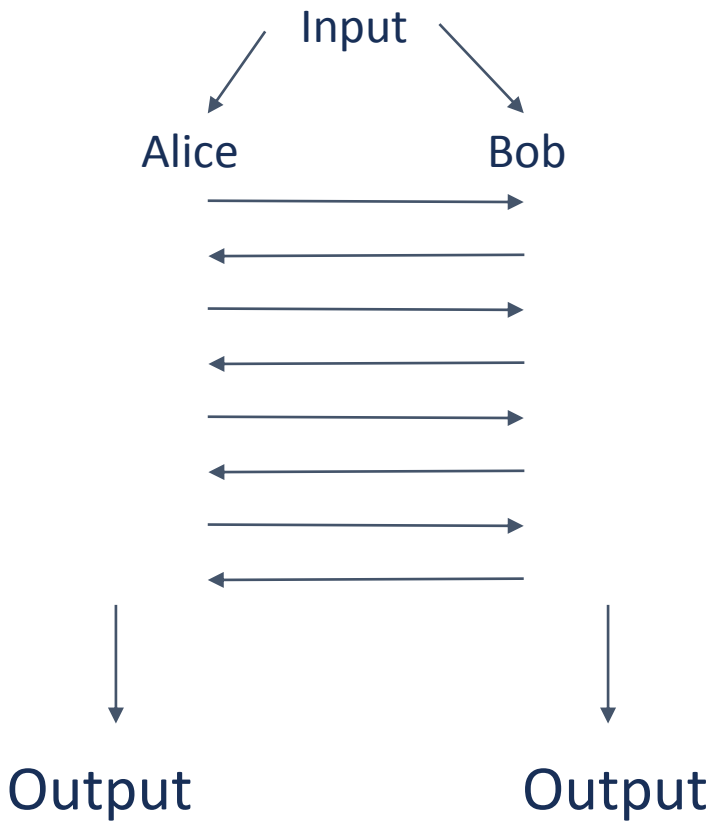
How good is an algorithm?

Measures of efficiency: Running time, memory space, ...

Upper bound: Design a more efficient algorithm

Lower bound: Mathematically prove that it's impossible to do better

Structural **Communication** Complexity



Structural **Communication** Complexity

Motivated by big data and cloud computing
(data is geographically separated, or too big to fit on one machine)

Many other application areas:

- Computer hardware design
- Machine learning
- Cryptography
- Optimization theory
- Computational economics
- Pure math

Structural Communication Complexity

Classical structural complexity theory:

- Classify computational problems according to resources needed to solve
- Organize problems into “complexity classes”
- Study relationships among different classes

“Structural communication complexity”:

- Import insights from structural complexity into communication complexity
- Has already led to resolution of some long-standing open questions

8. Additional Business

Presented by David Kemmee

9. Adjournment

Presented by David Kemmee