The Cluster to Advance cyber-Security and Testing (CAST) at the University of Memphis represents a major interdisciplinary effort focusing on research, education, and technology transfer at the FedEx Institute of Technology. The CAST Research Cluster is pleased to announce the 2018 Call for Proposals from faculty to advance cyber-security research by leveraging innovative perspectives in this critical area.

The Institute will provide seed funding to select projects to help continue the development of the University of Memphis as a major research hub for the art and science of cybersecurity. Proposals should be between 5 and 6 pages in length (Word or PDF format) and include research justification, timeline, short budget, and an impact statement outlining how the project will benefit community, science, and industry best practices. Proposals that engage multiple departments are encouraged.

Selected proposal teams will be designated as CAST Research Fellows of the FedEx Institute of Technology. They will participate in all aspects of the CAST cybersecurity community development and resource creation.

Some specific examples of areas of research interest include the following (but faculty are encouraged to propose other interdisciplinary aspects as well):

- Behavioral and Policy Cyber Security Issues
- Connectivity, Traffic Flow, Econometrics, Applied Statistics in Security
- Cryptography, RSA, DES, SSL, TLS
- Cyber Network Security
- Cyber Laws and Regulations
- Cyber Security Testing
- Cyber Security and Healthcare, Compliance, HIPPA, Body Sensors
- Cyber Security and Portable Devices Security
- Cyber Security Applications for Electric Power and Energy Systems
- Cyber Security Attack Methods
- Cyber Security Management (e.g., compliance, social media privacy, insider threats, governance, etc.)
- Cyber Security Policies, Standards and Practices
- Cyber-anomaly detection, optimization, evolving networks, crisis response
- Cyber-security Problems involving applied Statistics, statistical learning, nonparametric statistics, biostatistics
- Global challenges of cyber security
- HPC support for cyber security research needing such resources
- Human aspects of technology use and, cyberbullying, cyber-psychology
- Internet-of-Things Security, Industrial Control Security, Networking
- Network security, future internet architecture, network measurement and analysis
- Penetration Testing
- Proactive defense, information forensics, data analytics, cyber-physical systems, wireless and mobile systems
- Risk factors for attack, social engineering, cyber security, social engineering
- Risk-Based Security Testing
- Secure Design and Coding Techniques
- Secure Dynamical systems/networks/chaos
- Secure Geographic Information Systems, spatial data, geo-fencing
- Secure Machine Learning, Optimization, Software testing, Industry collaboration, Formal Methods
- Secure RFID, Internet-of-Things, end user technologies, and Industrial control
- Security E-Fraud, Supply Chain, Auditing

- · Security Impact on Cities (Memphis) and Society
- · Security Impact on Non-Government Entities
- · Security Impact on the Mid-South
- · Security Metrics and Governance
- · Security-issues of Artificial Intelligence, Machine Learning, Cognitive Science/Neuro-science, abnormality detection, Security
- · Software Vulnerabilities
- · Supply Chain Issues and Optimization for Cyber Security
- · Testing cryptography security and forensics
- · Threat Detection, Risk Evaluation Testing and Live Intrusion Detection
- · Transportation Engineering, Optimization, Game Network Vulnerability/Resilience
- · Virtualization Security and Cloud Models
- · Web Application Security Testing

Deadline for receipt of proposals is May 18, 2018. Please submit proposals as email attachments addressed to Mary Ann Dawsom, Assistant Director, FedEx Institute of Technology at mdawson@memphis.edu with subject line as "2018 CAST Research Cluster Proposal submission." For questions about the call for proposals or the CAST research Cluster please contact Cluster Directors Dr. Dipankar Dasgupta ddasgupt@memphis.edu and Dr. Robin Poston at: rposton@memphis.edu Those submitting proposals will be notified regardless of outcome by early June 2018**.** A selection committee of cybersecurity experts and CAST leadership will review applications and select those for funding. To foster interdisciplinary collaboration, successful proposals may be clustered into distinct research groups under CAST that will be tasked with developing larger grant proposals from external granting bodies.