

UofM Team, including Dr. Mehdi Amini (MSCM), Awarded \$5M NSF Grant for Supply Chain Research

The Center for Transportation Innovations Education and Research (C-TIER) at the University of Memphis has been awarded a planning grant by the National Science Foundation (NSF) for an Industry-University Collaborative Research Center (IUCRC). This center, named the Center for Electrified and Autonomous Transportation in Agile Freight Supply Chains (CEATAFS), will converge and apply knowledge in emerging technologies in connected, electrified and autonomous trucking and freight logistics networks for achieving efficient, safe, agile and sustainable supply chain systems.

The one-year grant will fund the industry discovery required to accurately provide freight mobility solutions and create new global market opportunities for US industries and strengthen US leadership in supply-chain innovations and autonomous trucking. As an industry-university consortium, member companies will drive precompetitive research project selection, allowing the pooling of research dollars around common issues facing many industry segments. All member companies share in this knowledge, gained by the directed research, allowing their research and development resources to carry this knowledge into product development.

“The IUCRC brings a new opportunity for us to engage with freight industry in addressing critical issues affecting the electrification, autonomous mobility innovations, emerging technologies in planning, design, operation, safety and equity of the future supply chain” said Dr. Sabya Mishra, director of C-TIER and CEATAFS. He further added “Freight transportation, supply chain, and logistics have been witnessing significant changes due to new technological innovations, economic crisis, and customers demand and expectations changes which require new studies with new perspectives. This NSF fund will help our center to focus more on challenges and opportunities of emerging technologies in the future of industries”

CEATAFS will advance research in interdisciplinary fields such as cooperative multi-agent control, reliability assessment, automotive powertrain design, vehicle design, systems engineering, agile logistics, energy management, human-machine interaction and vehicle data communication. This center will build on long-standing industry-funded research at the Center for Transportation Innovations, Education and Research (C-TIER) at the University of Memphis. CEATAFS will explore the conceptual and operational challenges of deploying electric and autonomous freight transportation systems by converging knowledge in engineering analysis, behavioral sciences, and business analytics.

EVP for the UofM Division of Research & Innovation, Dr. Jasbir Dhaliwal, said of "Industry engagement through research will help the University of Memphis solve real world problems in fast changing autonomous freight supply chain. IUCRC is a unique and prestigious program of NSF that is going to solve industry needs through university research by creating next generation of students serve in the industry.”

CEATAFS will train the next generation of engineers, researchers, in electrified and autonomous freight supply chain. Outreach programs to broaden participation in engineering and related fields will engage with local organizations and launch an autonomous electric vehicle racing

competition for youth. Research opportunities for undergraduates will be expanded, including industry internships.

The CEATAFS planning grant award is combined effort from faculties across campus. It includes Dr. Mihalios Golias (Civil Engineering), Dr. Hasan Ali (Electric Engineering), Dr. Myounggyu Won (Computer Science), Dr. Alex Headley (Mechanical Engineering), Dr. Mehdi Amini (Marketing & Supply Chain Management).

For questions or collaboration in the NSF IUCRC center, please contact Dr. Sabya Mishra at smishra3@memphis.edu.