

# **SIUE School of Engineering's Lofti leads National Advancement of Mechatronics and Robotics Education**

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EDWARDSVILLE - The National Science Foundation (NSF) has awarded \$49,957 to Southern Illinois University Edwardsville in support of School of Engineering's (SOE) Nima Lotfi's, PhD, work to advance mechatronics and robotics education by pioneering a more cohesive curricular approach across the nation.

Lotfi is an assistant professor in the SOE's Department of Mechanical and Industrial Engineering. As a teacher-scholar in the SOE's mechatronics and robotics engineering (MRE) program, he has witnessed the area of study's dynamic growth and notes the need for collaborative development of educational materials.

He is the principal investigator (PI) of the NSF-funded endeavor, entitled "Workshops for the Future of Mechatronic and Robotic Education." His co-PI's include Vikram Kapila, PhD (New York University); Mike Gennert, PhD (Worcester Polytechnic Institute); and James Mynderse, PhD (Lawrence Technological University).

"Mechatronics and robotics engineering professionals are shaping the world by designing smart and autonomous systems, and processes that will improve human life and welfare," Lotfi said. "MRE requires an interdisciplinary knowledge of mechanical, electrical, computer, software, and systems engineering to oversee the entire design and development process. Our work in MRE education is critical to prepare our students for careers at the human-technology frontier."

The project's main goal is to offer workshops aimed at bringing together MRE educators, students and professionals to share experiences and initiate efforts toward defining the field.

"I am extremely happy to have received support from the NSF, as it will enable me and my collaborators to hold several workshops at various technical conferences," Lotfi said. "Through these workshops, we plan to build a community of mechatronics and robotics professionals from around the world to standardize and strategize the future of this field. I am excited to be one of the pioneers toward this effort."

"We are thrilled about the rapid growth in enrollment we have observed since we started our new mechatronics and robotics engineering program two years ago," said SOE Dean Cem Karacal, PhD. "This new interdisciplinary program is one of the emerging fields in engineering and we are happy to be one of the first in our geographic region to offer it. We are proud to have faculty members like Dr. Nima Lotfi lead the way in this new frontier in engineering education."

Project collaborators are also placing emphasis on outreach initiatives that will ensure inclusivity and diversity among workshop participants. Their future work will expand the MRE educational community to incorporate educators in K-12 institutions, potentially reshaping and reinvigorating K-12 STEM education.

“By recruiting the next generation of MRE educators and professionals, we aim to inspire succeeding generations of students to enter engineering with the skills to lead the nation in this emerging field,” explained Lotfi. “The drivers of coming societal employment changes, including machine learning, artificial intelligence and robotics, are significant components of the MRE knowledgebase.”

The [SIUE School of Engineering](#) offers one of the most comprehensive and affordable engineering programs in the St. Louis region with eight undergraduate degrees, five master’s degrees and a cooperative doctoral program. Students learn from expert faculty, perform cutting-edge research, and participate in intercollegiate design competitions. Companies in the metropolitan St. Louis area provide students challenging internships and co-op opportunities, which often turn into permanent employment. Students gain hands-on experience in the School’s state-of-the-art facilities, including the new Fowler Student Design Center.