Clarkson University Professor Receives NSF Grant to Fund Heart Failure Patient-Driven Research

Yuncheng Du, Assistant Professor of Chemical & Biomolecular Engineering at Clarkson University was awarded the National Science Foundation's (NSF) Faculty Early Career Development (CAREER) grant in order to fund his research on the dynamic behavior and control of complex systems.

Du's goal in this project is to develop and validate the control framework to detect device faults such as thrombosis and suction that jeopardize the survival of heart failure patients, and automatically adjust the operation of the device under faults to improve the patient quality of life.

"I am honored and excited about this award, and hope this provides me a chance to recruit more amazing students that I can work with and help them build a successful career and accomplish their personal and professional goals."

In addition, Du plans that this project will be open to both undergraduate and graduate students. In particular, he intends to promote inclusivity and diversity in STEM with hopes of recruiting veterans and helping them transition into civilian life.

As recently reported by the White House, "*the U.S. lacks formal mechanisms that engage governments, educators, and employers to coordinate on workforce development policies and practices at the national level*." The CAREER project is a way to promote self-directed continuous learning of science and engineering technology to students, staff, and adults who desire to engage in science and technology discussion.

Du hopes that the research outcomes from this project will advance fundamental knowledge in control engineering and machine learning, and techniques developed in this project will be translated and applied in various applications, including medical devices, manufacturing processes, and other fields that are related to society.