



Joel Cooper

Joel Cooper Receives NSF Fellowships

Joel Cooper, a doctoral candidate in the Department of Mechanical Engineering, has been awarded two prestigious National Science Foundation fellowships to conduct research in Japan. This summer, he will be supported for ten weeks by **NSF's East Asia Pacific Summer Institutes (EAPSI) fellowship** to collaborate with Dr. Yasuhisa Hasegawa and his associates in the Micro-Nano Control and Bio-Robotics Laboratory at Nagoya University in Nagoya, Japan. In the fall, Cooper will be sponsored by **NSF's Graduate Research Opportunities Worldwide (GROW)** activity to resume and expand his research in Japan until May 2016. Both fellowship awards are supported through NSF's partnership with the Japanese Society for the Promotion of Science. Previously, Cooper was named a recipient of NSF's Graduate Research Fellowship Program (GRFP) in 2012.

Cooper will study a novel method to characterize the mechanical properties of individual cells for both tissue engineering applications and the study and detection of various diseases (i.e., cancer.). The characterization technique developed will provide a simple, fast, and flexible technique which can be performed using commercially available equipment. This new technique will be able to characterize a cell's natural frequency, a mechanical property which no current measurement technique can determine.

The NSF EAPSI fellowship program provides U.S. graduate students (U.S. Citizens and permanent residents) in science and engineering disciplines with first-hand research experiences in seven East Asia and Pacific locations (Australia, China, Japan, New Zealand, Singapore, South Korea, and Taiwan). NSF EAPSI fellows receive an introduction to the science and science policy infrastructure of their respective location along with an orientation to the culture and language of these locations. These goals are met through research visits that will enable graduate students to initiate scientific relationships for collaborations with foreign counterparts in the future.

NSF GRFP fellows are eligible to be supported by GROW for expanded research opportunities in 21 countries to enhance their professional development at top-caliber science and engineering research sites overseas. GROW provides funding for international stays between 2-12 months, with the duration varying by country and partner organization. Fellows must submit peer-reviewed research proposals to receive support from both NSF and the international sponsoring agency.

Cooper's dissertation research focuses on the manipulation and patterning of cells using acoustic forces. He is co-advised by Nathan Gallant, associate professor in the Department of Mechanical Engineering, and Rasim Guldiken, associate professor in the Department of Mechanical Engineering.

[NSF East Asia Pacific Summer Institutes for U.S. Graduate Students](#)

[NSF Graduate Research Opportunities Worldwide \(GROW\)](#)

[USF Cellular Mechanotransduction and Biomaterials Laboratory](#)

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