

Biological Engineering Alumni Shine in NSF Grad Research Fellow Search | College of Engineering

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News Release — Mar. 30, 2021 — The College of Engineering congratulates biological engineering alumni Bailey McFarland and Emilee Madsen for their recognition by the National Science Foundation Graduate Research Fellowship Program.



Bailey McFarland, '20, is a recipient of the 2021 NSF Graduate Research Fellowship. He is pursuing a PhD in biological engineering at Utah State under the mentorship of Dr. Yu Huang.

The program recruits high-potential, early-career scientists and engineers and supports their graduate research training in STEM fields. Its purpose is to ensure the vitality and diversity of the scientific and engineering workforce of the United States.

McFarland, '20, was awarded the [NSF Fellowship](#) along with 2,000 other students across the country. The award will help cover the costs of graduate school and offers excellent opportunities for professional development. Madsen, '17, received an honorable mention, a significant

national academic achievement that provides honorees with access to a wealth of research resources.

A Draper, Utah native, McFarland graduated with his bachelor's degree last year. As a fellow of the [Engineering Undergraduate Research Program](#), he worked as a research assistant in Dr. Yu Huang's tissue engineering lab. He also worked in USU's spider silk lab for two years, led by the Biology Department's Justin Jones. Advised by Dr. Huang, McFarland is pursuing a PhD in biological engineering. He studies the effects of radiation and microgravity on the brain using mini-brains uniquely developed in Dr. Huang's lab. His goal is to find ways to protect the brain, both on the ground and in space.

"I'm honored to receive this award," said McFarland. "I'm especially thankful to my letter writers, Dr. Justin Jones, Dr. Yu Huang, and Dr. Davila of NASA's exobiology branch. Their continued support and encouragement have helped me develop the confidence to pursue this opportunity throughout the process."



Emilee Madsen, '17, received a GRFP honorable mention. She is pursuing a PhD in biomedical engineering at Purdue University.

Madsen earned a bachelor's degree in biological engineering in 2017. As an undergrad, the Logan Native was involved in a number of research projects; with Dr. David Britt, she investigated the use of nanoparticles as an antiviral treatment, and she and Dr. Tim Taylor designed a 3D-printed soil substitute to grow plants in microgravity. She also tutored for the college and volunteered with [Engineering State](#). She was awarded the college's

Outstanding Understanding Researcher of the Year her senior year.

Today, Madsen is a second-year PhD student in biomedical engineering at Purdue University, where she received the Leslie A. Geddes Fellowship in 2019. She researches point-of-care medical devices and biosensors, and her current project focuses on developing a minimally invasive wearable sensor for continuous glucose monitoring.

According to NSF, the program recognizes and supports outstanding graduate students who are pursuing research-based master's and doctoral degrees in science and engineering. GRFP provides three years of financial support within a five-year fellowship period — \$34,000 annual stipend and \$12,000 cost-of-education allowance to the graduate institution.

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