UC San Diego
UC San Diego News Center

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Engineering Graduate Students Selected as Siebel Scholars

Five Jacobs School of Engineering graduate students working to improve immunology, cardiac health, blood transfusions and our understanding of the genome have been named 2019 Siebel Scholars. The Siebel Scholars program recognizes the most talented students in the world's leading graduate schools of business, computer science, bioengineering and energy science. The students are selected based on outstanding academic performance and leadership, and each receive a $35,000 award toward their final year of study.

This year, three of the Siebel Scholars from the University of California San Diego are pursuing research through the Department of Bioengineering— UC San Diego was ranked the No. 1 bioengineering doctoral program in the nation according to the National Research Council rankings. One Siebel Scholar is studying biomedical nanotechnology through the Department of NanoEngineering at UC San Diego, which was the first in the country to offer undergraduate and graduate courses of study in nanoengineering, and one is a bioinformatics student conducting research in the UC San Diego School of Medicine.

"Engineers improve human health and saves lives every day. Our Siebel Scholars highlight some of the many ways we are pushing the limits of engineering to benefit human health and save lives," said Albert P. Pisano, Dean of the UC San Diego Jacobs School of Engineering. "They have my hearty congratulations for their tremendous efforts in the lab and in the community. I expect we'll be hearing a lot more from these Siebel Scholars in the coming years."

The five 2019 Siebel Scholars from UC San Diego and some of their accomplishments are outlined below.

Ashley Kroll

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Ashley Kroll's research is focused on expanding cell membrane-coated nanoparticle applications into the areas of immunology and vaccines. As a student in Professor Liangfang Zhang's nanoengineering lab at the Center for Engineering in Cancer, she plans to use the coated nanoparticles to dampen overactive immune reactions, such as transplant and transfusion rejections. Kroll, a biomedical nanotechnology student, has also been active in the Jacobs School Undergraduate Mentoring Program and the Society of Women Engineers, and plans to continue these mentoring and leadership roles. She received a bachelor's degree in Nanoengienering: Bioengineering and a master's in Nanoengineering: Biomedical Nanotechnology, both from UC San Diego. Her research poster on a cancer vaccine that can be used to train the immune system to recognize and eliminate malignant tumors was awarded the Best Poster Award for Nanoengineering and the inaugural IGNITE Prize for Most Commercial Potential at the 2018 Jacobs School of Engineering Research Expo.

Colton Lloyd

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Colton Lloyd is a Bioengineering Ph.D. candidate researching the development and application of genome-scale models of metabolism and gene-expression (ME-models) in Professor Bernhard Palsson's lab in the Department of Bioengineering. Lloyd was involved in the development of an open–source software package called COBRAme that powers ME-model computation. He also applied his experience with computational biology software development to extend the shelf life of blood bags in clinical settings in collaboration with startup company Sinopia. He is a recipient of an NSF Graduate Research Fellowship, and after graduation he plans to continue pioneering the use of computational systems biology techniques to further advance the fields of biotechnology and medicine.

Rachel Marty Pyke

Rachel Marty Pyke's research focuses on the computational analysis of the relationship between genomic variability in the immune system and the evolution of tumors. As a Ph.D. candidate in Bioinformatics, Pyke works in Assistant Professor Hannah Carter's lab in the UC San Diego School of Medicine, and has published several papers, including as first author in

Rachel Marty Pyke

the journal Cell. She was awarded an NSF Graduate Research Fellowship and an NSF Graduate Research Opportunities Worldwide Fellowship. Beyond research, Pyke is a leader on and off-campus. As an undergraduate studying Computer Science: Bioinformatics, she was captain of the UC San Diego women's basketball team, and as a graduate student taught a programming boot camp for incoming students. Pyke also founded the Graduate Bioinformatics Council where she initiated a peer mentor program and organized recruitment efforts.

Kimberly McCabe

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Kimberly McCabe works with Professor Andrew McCulloch in the Cardiac Mechanics Research Group as a bioengineering Ph.D. student. She uses molecular and cellular computational simulations to study cardiac mechanics. Specifically, she aims to determine the mechanisms and side effects of a potential new therapy for heart failure called dATP. In addition to conducting translational engineering research, McCabe mentors young women, empowering them to pursue higher education in STEM. She's the vice president for external affairs for the UCSD Graduate Student Association, performing outreach and advocacy on behalf of the 7,000 graduate and professional students at the university. She is also the vice chair of Student Advocates for Graduate Education, working with a coalition of public institutions who campaign for access and affordability to graduate education.

Alexander Williams

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Alexander Williams' research focuses on decreasing the dependence on blood transfusions, primarily by developing and identifying safe and effective hemoglobin (Hb)-based oxygen carriers (HBOCs). He earned a bachelor's degree in bioengineering from UC San Diego, and is now a Ph.D. candidate in the Department of Bioengineering, working with Associate Professor Pedro Cabrales. In addition to his innovative research, Williams mentors undergraduate researchers, participates in the Summer Training Academy for Research Success program, volunteers with K-12 STEM outreach efforts such as the Enlace

binational summer research program, and is involved with the UC San Diego Bioengineering Graduate Society, which conducts outreach and spreads awareness of and interest in bioengineering on the campus, county and national levels.

Siebel Foundation

The Siebel Scholars program was established by the Siebel Foundation in 2000. It recognizes the most talented students at the world's leading graduate schools of business, computer science, bioengineering and energy science. Bioengineering was introduced as a new program in 2009 at five universities, including UC San Diego. The Siebel Foundation recognized the Jacobs School of Engineering's pioneering efforts in bioengineering with an endowment to fund fellowships for the top five bioengineering graduate students each year. The Siebel Scholarship awards at UC San Diego are administered by the Institute of Engineering in Medicine and the Jacobs School of Engineering to reward leadership achievement and academic excellence in bioengineering.

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