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BIOENGINEERING

MESSAGE FROM THE CHAIR | SANJEEV G. SHROFF, PHD

On behalf of our faculty, staff, and students, I am happy to present you with the Department of Bioengineering's Fall 2019 E-Newsletter.

This newsletter features **Gelsy Torres-Oviedo**, who recently received an $800K NSF CAREER Award for a novel approach to improve locomotor learning in stroke patients. She is the fifth Swanson School CAREER Award recipient in 2019, tying the school's record from 2017. Gelsy hypothesizes that some stroke survivors have difficulty perceiving their asymmetric movement and will use this project to characterize this deficit and indicate if split-belt walking – in which the legs move at different speeds – can correct it.

Steven Abramowitch is the recipient of the 2019 BMES Diversity Award. This is a testament to Steve's unwavering commitment to promoting diversity and providing access to STEM education to students from underrepresented minority and underprivileged groups. We are extremely proud of Steve's accomplishments.

AY19 was another successful year of extramural funding in Bioengineering with a total of $20.63M in new grants awarded, including a new addition to our graduate training grant programs. In partnership with the Department of Psychiatry, **Tamer Ibrahim** received a $1.1M T32 award from the National Institutes of Health for a unique multidisciplinary program that prepares students with a background in engineering and other quantitative sciences for careers in mental health research. With the addition of this program, our department now has four NIH training grants: Biomechanics in Regenerative Medicine (BiRM), Cardiovascular Bioengineering Training Program (CBTP), Cellular Approaches to Tissue Engineering and Regeneration (CATER), and the Bioengineering in Psychiatry Training Program (BiP).

I invite you to review some of the other grants received by Bioengineering faculty during AY19 in the Newsletter: **Tracy Cui'**s award for "Improving Neural Implants"; **Doug Weber**'s awards to contribute to the "New Wave of Brain-Computer Interface Technology"; **Steven Abramowitch**'s award for a pelvic organ prolapse repair device that is "Designed with Women in Mind"; **Prashant Kumta'**s award to explore "Manufacturing in Microgravity", **Partha Roy**'s award to study a novel regulator of kidney cancer progression; and the CyteSolution team's award for the treatment of dry eye disease.

Our faculty were also productive in AY19 with a total of 274 peer-reviewed journal articles. For example, **Aaron Batista** and his collaborators published research in PNAS that reveals new neural activity patterns that emerge with long-term learning. In a PLOS ONE article, **Lance Davidson**'s group described how the worlds of computational modeling and experimentation can be brought closer together using novel imaging tools and image processing, especially in the context of embryonic tissue spreading.

The Fall-2019 term was the beginning of yet another exciting academic year in Bioengineering with a total enrollment of 270 undergraduate students (sophomores + juniors + seniors) and 169 graduate students (136 PhD and 33 MS in Medical Product Engineering). We graduated 85 undergraduate students and 46 graduate students (30 PhD + 16 MS in Medical Product Engineering) in AY19. The students continue to perform at a very high level, successfully competing for prestigious fellowships such as the National Science Foundation Graduate Research Fellowship, the National Defense Science and Engineering Graduate Fellowship, and the National Institutes of Health F30 award. In AY19, our students produced an impressive 66 peer-reviewed journal articles (60 graduate, 6 undergraduate), and you will find 44 of our undergraduate students making 43 research presentations at the upcoming 2019 Biomedical Engineering Society Annual Meeting in Philadelphia.

The Coulter Translational Partnership II Program and the Center for Medical Innovation continue to support our department's biomedical translational research and commercialization efforts. As we wait for an announcement about the fall 2019 funded projects, I'm happy to highlight three technologies that have experienced commercialization events in the past fiscal year with the help of the Coulter Program: PneuScooter, PerioMag GBR (now AmpliMag barrier membrane), and SoliDrop. Each of these products has the great potential to impact the medical community. I'm also happy to announce that the Center for Medical Innovation awarded grants totaling $70K to three research groups through its 2019 Round-1 Pilot Funding Program for Early Stage Medical Technology Research and Development.

This is just a brief highlight of the many impressive faculty and student achievements. I am incredibly proud of all these accomplishments, and I know that we will continue to push the limits of biomedical research and education in the years to come. I invite you to read more about our department in this newsletter, and I look forward to seeing you at the BMES Annual Conference in Philadelphia.

Sincerely,

Sanjeev G. Shroff, PhD
Distinguished Professor of and McGinnis Chair in Bioengineering