



MESSAGE FROM THE CHAIR | SANJEEV G. SHROFF, PHD



I hope that this newsletter finds you well as we address COVID-19 pandemic-related challenges and transition into new work settings. During these difficult times, it is important to remember our role as engineers: we must continue to innovate and find solutions for unmet needs in the real world and provide advancements that will impact lives across the globe.

On behalf of our faculty, staff, and students, I am happy to present you with the Department of Bioengineering's Spring 2020 eNewsletter. Please peruse the following email to read more about the exciting developments from our team.

In the feature story of this newsletter, we have chosen to highlight our collaborations with the Department of Psychiatry. Thanks to technology developed by Tamer Ibrahim, researchers can harness the power of one of the strongest human MRIs in the world, and this improved neural imaging has helped psychiatrists get a better look at brain structure and function.

I would like to congratulate Douglas Weber, Alicia Koontz, and Heng Huang on their [induction into the 2020 American Institute for Medical and Biological Engineering College of Fellows](#). This election is among the highest professional distinctions accorded to a medical and biological engineer. I would also like to congratulate William Federspiel for his [recent election to the National Academy of Inventors \(NAI\)](#). His long-standing interest in and commitment to developing novel respiratory support devices has culminated in technology that has saved the lives of critically ill patients, and his innovations will continue to impact the medical community for many years to come. Stephen Badylak, who is the PI on a [new \\$22M DARPA award](#) to create a 'smart' device for healing large muscle wounds, also achieved this impressive accomplishment (election to NAI) the year before.

I am happy to report that Bryan Brown and Alexis Nolfi [have been recognized by the Carnegie Science Awards](#) for the second consecutive year. Bryan received the Postsecondary Educator Award, and Alexis, a graduate student researcher in his lab, received the University Student Award.

Two neural engineering efforts from the department recently received NIH awards for their research. [Supported by a \\$3.7M NIH grant](#), Tamer Ibrahim and collaborators will use next generation Tic-Tac-Toe 7T MRI technology for real-time visualization of cerebrospinal fluid flow in the brain. TK Kozai was awarded a [\\$1.6M NIH grant](#) to develop an innovative wireless neural device for long-term and precise stimulation.

Our faculty continue to publish significant work in leading scientific journals. A 2019 paper from Steven Abramowitch was [recognized by the Journal of Biomechanical Engineering](#) for exemplifying high quality and significant work. Additionally, Lance Davidson recently [published an article in Nature Communications](#) detailing that tissue mechanics

can drive the regeneration of goblet cells on the outside surface of frog embryonic organoids.

Our translational research programs continue to flourish and support innovative work at the University. This semester, the [Center for Medical Innovation awarded grants totaling \\$47,500](#) to three research groups in its Round-2 Pilot Funding Program, and the [Coulter Program](#) invested \$240,000 in three innovative technologies in the past academic year. The CMI also announced an [expedited funding opportunity](#) to address the COVID-19 pandemic. A special award will be issued from the Early Stage Medical Technology Pilot Funding Program.

As always, I am impressed by the accomplishments of our graduate and undergraduate students. In the past few months, our graduate students have received several awards and published research in notable journals: (1) Ali Behrangzade, Soroosh Sanatkhani, and Danial Sharif Kia [received American Heart Association Fellowships](#). (2) Madeline Cramer [received an NIH F31 award](#) for her regenerative medicine research with Dr. Badylak. (3) Ameya Nanivadekar was selected by the National Institutes of Health as a [recipient of the Outstanding Scholar in Neuroscience Award Program](#). (4) Christopher Reyes [clinched third place](#) at the McGowan Institute Scientific Retreat poster session.

We have had many undergraduate student achievements in the past semester as well: (1) Jake Meadows and Tyler Bray continue to advance their Posture Protect device and were [chosen to participate](#) in the Innovation Institute's Forge student startup incubator. Their work was also highlighted by the University in a [Pittwire article](#). (2) Sebastian Correa [received the first place award](#) at the Society of Hispanic Professional Engineers National Convention poster competition. (3) McKenzie Sicke was [announced as a finalist](#) for the George J. Mitchell Scholarship Program. (4) Zachary Fritts, Janet Canady, and Jordyn Ting (graduate student, honorable mention) won the NSF GRFP Award, and two Pitt bioengineering alumni were also recognized: Kiara Lee (winner) and Arjun Acharya (honorable mention).

Lastly, I would like to recognize some additional accomplishments from our primary and secondary bioengineering faculty: (1) Lance Davidson, William Federspiel, and Warren Ruder received Swanson School [professorship and fellowship appointments](#). (2) In his Biomedical Engineering Society [Diversity Lecture Award talk](#), Steven Abramowitch asked his peers to consider the level of comfort in their career. (3) New Pitt research led by Tagbo Niepa [uses an electrochemical approach](#) to treat infections of metal-based implants. (4) UPMC researchers, including Kacey Marra, have [created a biodegradable nerve guide](#) — a polymer tube — filled with growth-promoting protein that can regenerate long sections of damaged nerves, without the need for transplanting stem cells or a donor nerve. (5) Youngjae Chun received [\\$120K from the Children's Heart Foundation](#) for an infant heart valve that grows with the patient.

On behalf of the Department of Bioengineering, I thank you for your continued interest and support. I wish that you all stay safe and healthy.

Sincerely,

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