



Boston University College of Engineering

PROJECT HIGHLIGHT

BTEC - Bridge BUILDers



Julia Pasco-Anderson, Sophia Brocoum, Kameron Moore, & Niketh Vellanki (BME MEng Students)

One of the main issues that healthcare providers face is the inability to treat chronic pain. One common method found to reduce chronic pain is Transcutaneous Electrical Nerve Stimulation (TENS), but this treatment decreases in effectiveness after a few months of continuous use. We designed a novel chronic pain relief device alongside Dr. Ezra Cohen to provide longer lasting relief. To test our design, we created a phantom ankle model in BTEC using a combination of propylene glycol, NaCl, agar powder, gelatin powder, and distilled water. The model reflects the properties of the ankle, so that we can measure the electrical signals generated by our device within human tissue and verify its safety and efficacy. BTEC was essential in the development of the ankle phantom and the testing of our device. We used the Molecular, Cellular, and Tissue Engineering Suite to create and store the ankle, the Biosensors and Instrumentation Suite to test our device on it, and the advice of BTEC Manager Kavon Karrobi to guide us along the way. The resources available through BTEC made it possible for us to gather the test data we needed to move forward with our device development.

upcoming events

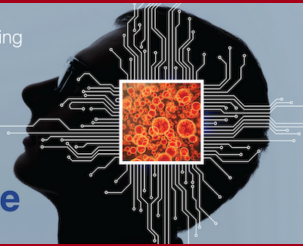
Senior Design Day!

Friday May 6, 2022

9:30-4:30 pm, Photonics

Biomedical Engineering

Senior
Design
Projects
Conference



Applying a Chemical Biology Mindset to Early Drug Delivery

Thursday May 19, 2022

3:30 pm, Photonics 906

BTEC
ENTREPRENEURSHIP
SEMINARS



Jeremy Jenkins
Novartis Institute



Nicole Renaud
Novartis Institute

"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away." - Antoine de Saint-Exupery
aviator, author, engineer

PROJECT HIGHLIGHT

SILab - Skate Obstacles by John Mikulkis (CE '23)

This project involves designing and fabricating a series of skate/snowboarding rails (like guardrails on the road) made primarily of PVC Pipe and Wood. The rails are intended to be light enough to be portable but heavy enough that they won't break or move too much during use. Different shapes allow for different kinds of tricks to be performed using them.

Since the rails are quite portable, they are able to turn a regular street in Boston into a mini-skate park for an afternoon or evening.

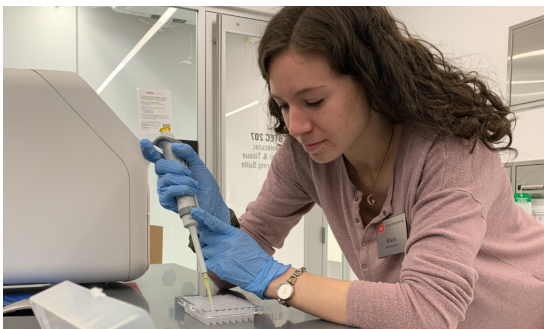


John Mikulkis working on the PVC pipe rail

TECHNOLOGY HIGHLIGHT

SpectraMax i3x - Molecular Devices

Rapid, plate-based absorbance measurements are key to scaling for many assay types involving, for example, drug screening, detection of protein expression, and monitoring of microbial growth. The SpectraMax® i3x Multi-Mode Microplate Reader measures absorbance, as well as luminescence such as fluorescence and bioluminescence. With the technology we can quantify cell viability, measure DNA and protein concentrations, and monitor molecular and cellular dynamics.



BTEC ASSISTANT HIGHLIGHT

Blaire Smith - Biomedical Engineering Class of 2022

Blaire has been working in BTEC as a BTEC assistant since September 2021. She is originally from Long Beach, CA and enjoys playing flute and holds a section leader role in the Marching Band and Pep Band here at BU. Her undergraduate research experiences have focused on synthetic biology, working in the Khalil Lab as a UROP student for two summers. Continuing in the Khalil lab for her Senior Design Project, she and her teammates have developed a biological "AND" logic gate and are working to develop a coherence detection circuit and model for an oligomerizing system with her Senior Design Team. After graduation, Blaire will be working as a research technician, carrying out CRISPR research in the Kleinstiver Lab at Massachusetts General Hospital

BTEC Advisory Board Members:

C4 Therapeutics, Draper, Medtronic, Novartis, Pfizer, Philips, Takeda, Thermo Fisher Scientific

PAST EVENT HIGHLIGHT

Women Entrepreneurs and the Business of Science

On April 26th as part of a BU Catalyst Grant from the Office of Diversity & Inclusion, BU hosted an event on De-mystifying the STEM C-Suite: Women Entrepreneurs and the Business of Science. Joshua Finkelstein, Executive Director of the BU Biological Design Center, welcomed attendees and led a fireside chat with Stacie Weninger, Executive Director of the F-Prime Biomedical Initiative.



Diane Joseph-McCarthy, Executive Director of BTEC, then moderated a panel on “The Road to the C-Suite for Women in Science” with four members of New England Women in Science Executives (NEWISE)—Anh Hoang, CEO of Jana Care (located at the BU Photonics Center), Kerrie Brady, CEO of OcuTerra Therapeutics, Joanne Kamens, Senior Consultant at The Impact Seat, and Nicole Wagner, CEO of LambdaVision. It was a lively and inspiring discussion with more than **85 attendees—90% women and 50% graduate students!** In addition to the BU Office of D&I, this event was sponsored by BU BDC, BTEC, and CMTM, and NEWISE.

Diane Joseph-McCarthy, Executive Director BTEC
Kavon Karrobi, BTEC Manager
Katie Kelso, SILab Manager
For more information, email: btec@bu.edu