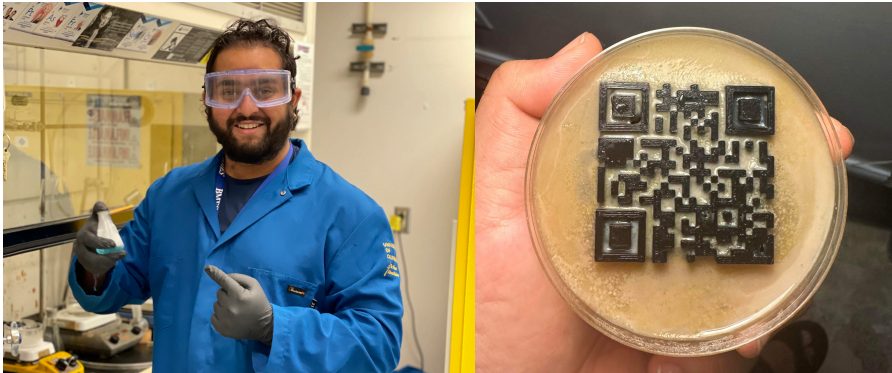




Boston University College of Engineering

BTEC PROJECT HIGHLIGHT

Bacterial Growth Mediated QR Code



Dev Bhatt (BME PhD, '28)

The bacterial quick response (QR) code project uses monochromatic bacterial colonies to fill in the spaces in a 3D printed QR code mold. Together, the components form a working QR code that can be dynamically linked to a site or file. While originally ideated as a hobby project, the bacterial QR code is being developed to be an open source DIY-biotech project for others to create and potentially expand.

The non-pathogenic bacteria used are inexpensively isolated from natural sources such as yogurt or soil and grown on LB media in BTEC. Thus far, lactobacillus have been successfully plated and used to populate a prototype QR code mold. The mold was printed using the Prusa and Flashforge printers in SILab. The current challenge lies in isolating microbes that reliably produce monochromatic colonies for consistently successful scanning of the QR code, and optimizing the print settings for the QR code mold. **This project is funded by the Engineering Student Innovation Fund.**

BTEC Advisory Board Members:



upcoming events

Lutron Lighting
Innovation Competition
Feb 24 at 12, SILab



High Throughput
Spectroscopic Assay
Workshop
Feb 28 at 6:30, BTEC



Stories from a Societal
Engineer: Leveraging a degree
in engineering to do "non-
engineering" things

Mar 21 at 3:30, Photonics 906



Brian Dunkin, MD
Chief Medical
Officer
Boston Scientific

Dean's Imagineering
Competition
Apr 11 and 12, SILab

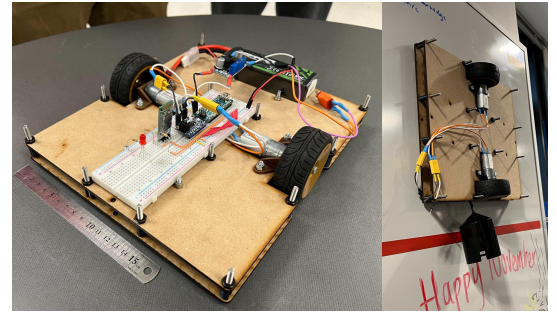
BTEC x BMES
Design Competition
Apr 27 at 12, LSE B03



SILAB PROJECT HIGHLIGHT

WIPER by Yiming Yu, Zhonghao Wei, Zizai Ma, Peng Qiu, and Nathan Sun (Mech E '24)

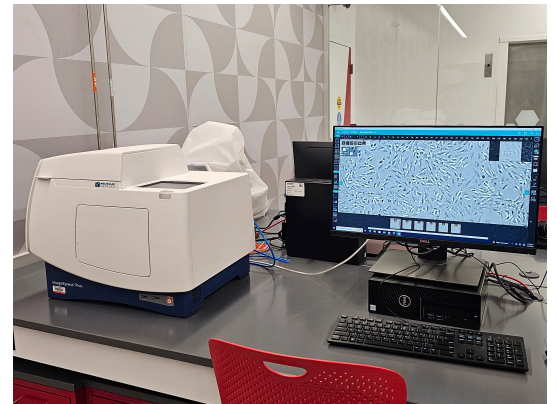
Whiteboard Intelligent & Programmable Erasing Robot (WIPER) is specifically designed to autonomously clean whiteboards so that professors can focus on teaching. It can be remote controlled via Bluetooth and attaches to the whiteboard using magnets. As it moves around, 4 melamine erasing foams quickly remove leftover ink, leaving the whiteboard clear and ready to be used again. **This project is funded by the Engineering Student Innovation Fund.**



BTEC TECHNOLOGY HIGHLIGHT

ImageXpress® Pico

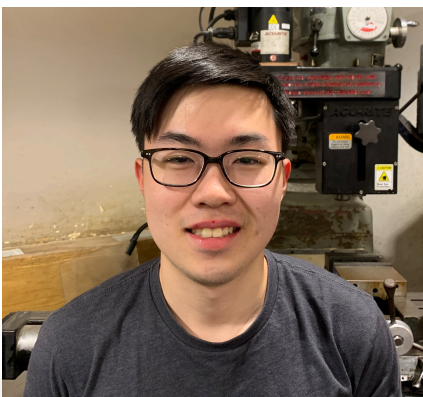
The Molecular Devices® ImageXpress® Pico Automated Cell Imaging System is an advanced all-in-one inverted microscope designed for automatically capturing and analyzing biological samples, including fluorescently labeled ones, in plates and slides. With features like rapid autofocus, precision sample movement, and modular environmental control options, this system offers users a powerful tool for high-throughput image acquisition and analysis. Coupled with the CellReporterXpress® software, it becomes a flexible device with over 25 predefined experimental protocols, enabling users to conduct user-defined, automated assays. In BTEC, the ImageXpress Pico has empowered users to conduct autonomous live-dead cell assays over multi-day experiments, allowing them to focus on data analysis and drive innovation in their work.



SILAB ADVISOR HIGHLIGHT

Noah Taniguchi (Mech E '24)

Noah began working at SILab in Spring 2021. Originally from Honolulu, HI, his interest in woodworking, machining, and 3D printing began in high school where he was an active member of his FIRST Robotics team. At SILab, Noah has learned new skills such as milling techniques and soldering, which he has utilized on class projects and for the Terrier Motorsport club. As a SILab Advisor, Noah has the opportunity to help his fellow engineers learn in a hands-on environment.



ENGINEERING STUDENT INNOVATION FUND

For information on how to apply for funding scan the QR code to the right.



PAST EVENT HIGHLIGHTS

BTEC x BMES Student Chapter Design Competition

BTEC and the BMES student chapter at BU kicked off the 2nd annual year-long design competition focused on challenges around healthcare disparities for under-represented minorities and low-income communities with the goal of including diversity in design to enhance outcomes. The competition final, with **prizes sponsored by Merck**, will be on April 27th.



SWE at BTEC and SILab

The Society of Women Engineers (SWE) gathered in BTEC and SILab, respectively, to take the required safety trainings as a group and to learn more about the cutting-edge technologies available to them.

BTEC HackHardware Workshop

As part of the HackHardware Hackathon, BTEC hosted a workshop exploring pulse oximetry, medical disparities, and the potential benefits of machine learning (ML). The event featured hands-on sessions on spectroscopy, its role in pulse oximetry, and how ML models for predicting oxygenation levels can be used to mitigate racial bias. Participants collected their own data and utilized MATLAB's ML toolbox.



SILab Catapult Challenge

The annual SILab Catapult Challenge took place on a brisk Saturday afternoon in November on Nickerson Field before a panel of judges. The previous weekend 10 teams had 7 total hours and limited resources to design and build their 3 x 3 x 2 ft³ catapults. The winning catapult, by Soud Alkharji (ECE '27) and Charlie Van Hook (Mech E '27), was able to project a golf ball over 145 feet!



LEAP Into the Future of Engineering (LIFE)

During a 3-day hands-on workshop, LEAP masters students learned the fundamentals of fluorescence microscopy, spectroscopic assays, and 3D bioprinting to better prepare them for BioTech internships.

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