

Philip Byrne

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EDUCATION

Fairfield University

Sept. 2022 – Present

Electrical Engineering and Mathematics Double Major, Class of 2026, 3.64 GPA

Fairfield, CT

TECHNICAL EXPERIENCE

Massachusetts Institute of Technology, McGovern Institute

May 2024 – Present

Research Assistant at Seethapathi Motor Control Group

Cambridge, MA

- **Developed the first true-to-life and literature-validated** split-belt treadmill in the MuJoCo physics engine. For further reference, click the [link](#)
- Worked with the Deepmind dmcontrol library in Python to implement reinforcement learning environments.
- Analyzed and collected simulation data and validated results with existing literature.

Fairfield University, Biomedical and Electrical Engineering Department

Sept. 2022 – May 2024

Research Assistant, Dr. Isaac Macwan's Lab

Fairfield, CT

- Worked in Dr. Isaac Macwan's lab developing novel methods to adsorb bacteriorhodopsin onto electrospun PVA nanofibrous scaffolds with embedded graphene for bioengineered memory applications.
- Presented this work in Boston at the 2023 Material Research Society conference and at the 2024 at the Northeast ASEE conference.
- Utilized EDX spectroscopy in a scanning electron microscope to image embedded bacteriorhodopsin in PVA scaffolds.

NidusAI

June 2021 – Aug 2021

Data Analysis

Boston, MA

- Aggregated large data sets of patient ODI and EQ5-D scores over two years when using NidusAI's second opinions for treatment regarding spinal spondylosis compared to patient scores without consulting NidusAI.
- Filtered and compiled data into presentable graphs for potential and current investors.

Boston College High School FRC Team 3958

Sept. 2019 – May 2022

Electronics and Pneumatics Captain

Dorchester, MA

- Created and maintained all electronics and pneumatics systems on team 3958's robots, .
- Worked with mechanical and drive train captains to engineer solutions for lifting the robot, picking up balls, and autonomous operation while working in a time-sensitive and high stress environment.
- During this time, I also mentored underclassmen, was made familiar with Kali Linux and its cybersecurity applications, and competed in district-level competitions twice

ACTIVITIES AND ASSOCIATIONS

IEEE Club, Fairfield University

Sept. 2024 – Present

IEEE Club Vice President

Fairfield, CT

- I am the vice president of the IEEE club at Fairfield University, and together with the club president, we are working to reinvent the club's mission from a more technical background to one focused on mentoring underclassmen and hosting talks from alumni, industry professionals, and academics.

Math Major Mentor, Fairfield University

Sept. 2024 – Present

Mentor to Math Majors

Fairfield, CT

- Currently a mentor to three freshman math majors as part of a university program. I help them develop skills to manage work and time, give them advice on life as a college student, and give them expectations and goals to work towards.

SELECTED HONORS

INSPIRE Grant Recipient

March 2023 and March 2024

- Grant for students at Fairfield University to fund their research projects. I was granted \$900 and \$930 to continue my work in Dr. Macwan's lab.

Dean's List

Sept. 2023 – May 2024

- Achieved above a 3.5 GPA both semesters of my sophomore year.

Loyola Merit Scholarship, \$20,000

Sept. 2022

- I received a merit scholarship from Fairfield University for \$20,000 per academic year for previous academic and extracurricular achievement.

ACHIEVEMENTS

Poster Presenter at Material Research Society Conference Boston

Nov. 2023

- Presented my research on electrospun PVA nanofibrous scaffolds with embedded bacteriorhodopsin on a poster at MRS Boston 2023.

Poster Presenter at ASEE Northeast Regional Conference

April 2024

- Presented my research on electrospun PVA nanofibrous scaffolds with embedded bacteriorhodopsin and graphene at the ASEE Northeast Regional conference.

Poster Presenter at Fairfield University Research Symposium

May 2024

- Presented my research on electrospun PVA nanofibrous scaffolds with embedded bacteriorhodopsin and graphene at the Fairfield University research symposium.

StagHack 2nd Place

Dec. 2022

- Placed second at Fairfield University's annual StagHackathon. Worked in a team of 3 using Python to develop a heat map tracking opioid overdoses in the Bridgeport area using data from police stations and hospitals.

SKILLS

Skills: Interdisciplinary Communication, Electrospinning, Microsoft Office, Python, MuJoCo, SOLIDWORKS Certification in Mechanical Design, MATLAB, Arduino