Aidan Hirsch

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EDUCATION

Purdue University 3.5/4.0 GPA – May 2028
Bachelor of Science in Biomedical Engineering *West Lafayette, Indiana*

RESEARCH EXPERIENCE

Research Assistant Jan 2026 – Present
Dadarlat Lab – Purdue University *West Lafayette, IN*

- Modeled and labeled forelimb movements in two-photon microscopy videos, training DeepLabCut pose estimation model for ipsilateral/contralateral motor cortex analysis
- Rebuilt and maintained lab's DeepLabCut training and analysis pipeline, restoring video pose estimation for multiple active experiments
- Trained electrode-implanted mice on somatosensory cortex behavioral tasks for neural stimulation studies

Research Assistant Jan 2025 – Dec 2025
Neuroprostheses Research Lab – Purdue University *West Lafayette, IN*

- Discovered novel correlation between modeled circuit values and electrode degradation by analyzing in-vivo electrical component parameters through UMAP statistical analysis
- Analyzed ultramicroelectrode array failure modes using 16-week electrochemical impedance spectroscopy study in rat somatosensory cortex
- Engineered reusable automation pipeline for data pre-processing, measurement modeling, and file preparation, saving over 4 months of manual labor and enabling rapid statistical model iteration

Research Assistant Apr 2021 – May 2024
Friel Lab – Burke Neurological Institute *White Plains, NY*

- Designed quantitative bimanual hand assessment for children with cerebral palsy, boosting joint location accuracy by 30-50% over prior qualitative methods
- Engineered a custom drawer for rehabilitation hand assessment using Raspberry Pi and 3D cameras to capture participant joint locations in 3D space
- Developed Python program to interact with drawer assessment by determining when a participant moved or touched parts of the drawer through measurement of electrostatic discharge

LEADERSHIP AND PROJECTS

EEG Build Team Aug 2025 – Present
Purdue IEEE Systems Man and Cybernetics Committee *West Lafayette, IN*

- Co-engineered a custom 128-electrode EEG system from component level encompassing custom ADC and microcontroller board layouts and firmware development
- Designed and fabricated multi-layer printed circuit boards to integrate 16 ADS1299 ADCs and 5 ESP32-S3 microcontrollers to achieve high fidelity and low noise neural signal acquisition
- Implemented embedded systems network using 5 ESP32s to synchronize and stream data from all 128 electrode channels at once

Chair of External Relations Apr 2025 – Present
Purdue Biomedical Engineering Society *West Lafayette, IN*

- Led coordination with over 120+ companies to organize and host Purdue's largest Biomedical Engineering career fair, Biomedical Engineering Networking Night
- Partnered with 15 companies to form a symbiotic relationship, increasing student interest and direct connections to biomedical engineering student hires
- Managed external communications with both companies and students via outreach emails and networking to build and cultivate relationships with alumni and industry professionals

SKILLS

Engineering Tools: KiCad | LTSpice | PCB Design | Embedded Systems | Solidworks
Data Analysis: Python (pandas, NumPy, matplotlib, seaborn) | DeepLabCut | CEBRA | MATLAB | R
Biomedical Techniques: Impedance spectroscopy (EIS) | Rat handling (IACUC) | Cyclic Voltammetry (CV)