Zachary Deutsch

zachary.deutsch@duke.edu | 312-989-5658

Education

DUKE UNIVERSITY — Durham, NC
B.S.E in Mechanical Engineering. B.S.E in Biomedical Engineering. Minor in Philosophy. GPA: 3.73 — Expected 2027
Relevant Coursework: Mechanics of Materials; Engineering Design; Data Structures & Algorithms; Statistics & Data Analysis; Technical Communication; Physiology & Biostatistics; Physics I & II; Calculus I, II, & III; Linear Algebra

UNIVERSITY OF OXFORD — Oxford, England
Study Abroad Coursework in AI and Ethics — June – August 2025

Experience

DUKE UNIVERSITY, HICKEY LAB — Durham, NC
Machine Learning Engineer — November 2024 - Present
- Build unsupervised ML pipelines for multi-organ cell type annotations of spatial-omics data with Dr. John Hickey
- Undergraduate Research Assistantship grant recipient

TEL AVIV UNIVERSITY, DATA DRIVEN MODELING & ANALYSIS LAB — Tel Aviv, Israel
Machine Learning Research Intern — May – August 2025
- Evaluated quantile-based feature extraction method for sEMG time series classification with Dr. Neta Rabin

DUKE UNIVERSITY, DEPARTMENT OF RADIOLOGY — Durham, NC
Mechanical Engineering Intern — September 2024 – May 2025
- Led 16 undergrads to develop catheter placement training system with Dr. Jonathan Martin

SHIRLEY RYAN ABILITY LAB, CENTER FOR BIONIC MEDICINE — Chicago, IL
Data Scientist — June – August 2024
- Analyzed data from $1.5M DoD-funded clinical trial on VR treatment for phantom limb pain with Dr. Levi Hargrove

Activities

DUKE UNIVERSITY, DEPARTMENT OF BIOMEDICAL ENGINEERING — Durham, NC
Biomedical Engineering Society Treasurer — September 2024 - Present
- Manage $10k annual budget for BMES Annual Meeting and professional events

Conferences

- Co-author, "Computational Framework for Multi-organ Cell Type Annotation of HuBMAP Single-cell Spatial-omics Data", BMES Annual Meeting, 2025
- Co-author, "Computational Framework for Multi-organ Cell Type Annotation of HuBMAP Single-cell Spatial-omics Data", HuBMAP Annual Meeting, 2025
- Oral Presenter, "Virtual Reality for Health Education Advanced Learning", Fortin Foundation Bass Connections Showcase, 2025; Awarded 1st Place Presentation
- Poster Presenter, "Computational Pipeline for Cell Type Annotations of HuBMAP Spatial-omics Data", Duke Undergraduate Research Symposium, 2025
- Poster Presenter, "Liquid Level Detection for bCPAP Respirators in Low-Resource Settings", Duke Engineering Design Expo, 2024
- Co-author, "Intuitively Controlled Virtual Reality for Treating Phantom Limb Pain", Institute of Biomedical Engineering MEC Symposium, 2024

Skills, Awards, & Interests

Technical: AI/ML, Python, Java, Microcontrollers, Circuitry, 3D Printing, CAD
Languages: Conversational Proficiency in Japanese and Spanish
Awards: National Youth Science Academy, 1st place J.P. Morgan GenerationTech, Illinois Science & Technology Coalition Scholarship
Interests: Espresso, Liszt, Stoicism, Nietzsche, Cycling