Zachary Deutsch

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Education

DUKE UNIVERSITY — Durham, NC
B.S.E in Mechanical Engineering. B.S. Mathematics. Minor in Machine Learning. Minor in Philosophy. GPA: 3.72 — Expected May 2027
Relevant Coursework: Mechanics of Materials; Engineering Design; Statistics & Data Analysis;
Data Structures & Algorithms; Technical Communication; 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 MODELING & ANALAYSIS 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 undergraduates to develop catheter placement training system with Dr. Jonathan Martin
- 1st place out of 100 teams at Fortin Foundation Bass Connections Showcase

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

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Activities

DUKE UNIVERSITY, DEPARTMENT OF BIOMEDICAL ENGINEERING — Durham, NC
Biomedical Engineering Society Treasurer — September 2024 - Present
- Raised $15k and led 15 undergraduates at BMES 2025 Annual Meeting

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Conferences

- Poster Presenter, "sEMG Hand and Wrist Movement Time-Series Classification: Evaluating QUANT and Cosine Features", BMES Annual Meeting, 2025
- 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
- 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

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, Google Scholarship
Interests: Espresso, Liszt, Stoicism, Nietzsche, Cycling