

Daniel Yao

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Education

Johns Hopkins University

B.S. Biomedical Engineering, B.S. Applied Mathematics and Statistics
4.00 GPA, 36 ACT, 1590 SAT, 528 MCAT

Baltimore, MD

Expected May 2027

Coursework

github.com/dyao13/CV/blob/main/yao_cv/yao_transcript.pdf

Abstracts

Hoffmann, J., Raghavan, S., Day, M., **Yao, D.**, et al. (2026). Continuous physiological monitoring reveals poor PRN sedation efficacy in pediatric critical care. Critical Care Congress. [Submitted.]

Raghavan, S., **et al.** (2026). Rethinking pediatric sedation assessment: a statistical evaluation of the State Behavioral Scale. Critical Care Congress. [Submitted.]

Liu, S., Sargent C., Broman L., **Yao, D.** (2024). Role of CRF1 and CRF2 receptors in stress-induced increase in intestinal permeability in the mouse colon. Physiology 39(S1), 815. doi.org/10.1152/physiol.2024.39.S1.815.

Experience

Oberst Lab, Johns Hopkins University

Aug 2025 - Present

Undergraduate Research Assistant

- Characterize active sampling estimators for recall evaluation of classification models

Johns Hopkins University

Aug 2024 - Present

Teaching Assistant

- Lead recitations and hold office hours for upper-level EN.553.420 Probability (FA24, SP25, FA25)
- Hold office hours for EN.601.226 Data Structures (FA25)

iMEDS: Data Driven Sedation in the Pediatric ICU

Aug 2024 - Present

Undergraduate Research Assistant

- Co-write and be awarded \$50,000 Malone Seed Grant for interdisciplinary research in healthcare
- Compare nurse-determined sedation-agitation scores with vitals and accelerometry in 14 patients to develop statistical model for pediatric sedation
- Extract heart-rate variability features from 250 Hz ECG data in time and frequency domains with neurokit2 and model pharmacodynamics with Runge-Kutta methods

Clark Lab, Johns Hopkins University

Jan 2025 - Aug 2025

Undergraduate Research Assistant

- Designed reinforcement learning agent with deep Q-learning to regulate pressure-control ventilation in ARDS patients using Gymnasium and PyTorch to select optimal parameters with 97.5% accuracy
- Simulated pressure-volume loop with nonlinear circuit model using PSpice and Simulink to generate data for 17,280 combinations of parameters

Susquehanna International Group

Mar 2025

Susquehanna Discovery Day

- Shadowed and played strategy games with traders to learn about decisions, risk, and market making

McCallion Lab, Johns Hopkins Medicine

May 2024 - Aug 2024

Undergraduate Research Assistant

- Edited iPSCs with CRISPR Del/Rei to investigate the role of cis-regulatory elements in Parkinson's Disease

Projects

Patient Referral Scheduler github.com/dyao13/RefMe	Jul 2024 - Present
<ul style="list-style-type: none">• Co-write and be awarded \$1,000 JHU Catalyst Award for early-stage research and development• Optimize scheduling of patient referrals from a random data stream with Markov Decision Process model and Monte Carlo methods in R to yield a 25% improvement over a first-come-first-serve model• Collaborate with Hospital Cepon, Florianopolis, Brazil to validate model on 24,000 retrospective surgeries	
Risk Agent github.com/dyao13/risk_agent	Apr 2025 - May 2025
<ul style="list-style-type: none">• Designed reinforcement learning agent to play Risk board game with deep Q-learning using Gymnasium and Keras in Python to achieve 80% win rate against heuristic agent	
Brawl Stars Draft Engine github.com/dyao13/BrawlStars	Jul 2024 - Aug 2024
<ul style="list-style-type: none">• Searched for optimal draft of 3 picks out of 82 characters per team via minimax algorithm with alpha-beta pruning to yield a 12% edge over human players in friendly matches in Python• Scraped e-sports games using beautifulsoup4 and logged ranked games with BrawlStarsAPI• Employed draft strategies to reach top 1000 global ranking out of 15 million monthly players	
Cell Tracker github.com/dyao13/cell_tracker	Jan 2024
<ul style="list-style-type: none">• Isolated centroid and areas of 40 cells with Sobel operator in MATLAB to achieve 98% accuracy compared to manual measurement with ImageJ• Tracked cell movement over time by predicting next position with 4th-order finite difference methods	

Activities

Hopkins Undergraduate Society of Applied Mathematics <i>Treasurer</i>	Baltimore, MD Aug 2025 - Present
Charm City Science League <i>Mentor</i>	Baltimore, MD Oct 2023 - Present
Hippocrates Med Review <i>Treasurer, Writer</i>	Baltimore, MD Sep 2023 - Present
Hopkins Symphony Orchestra <i>Cellist</i>	Baltimore, MD Sep 2023 - Present
Supporting Hospitals Abroad with Resources and Equipment <i>Shift Leader</i>	Baltimore, MD Sep 2023 - Present
Johns Hopkins Math Tournmament <i>Writer</i>	Baltimore, MD Dec 2024 - Apr 2025
Organic Chemistry Initiative <i>Lecture Team</i>	Baltimore, MD Mar 2024 - Dec 2024