Daniel Yao

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Education

Johns Hopkins University Baltimore, MD
B.S. Biomedical Engineering, B.S. Applied Mathematics and Statistics Expected May 2027
4.00 GPA, 36 ACT, 1590 SAT

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 Behavorial 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

- Lorem ipsum

Tampakakis Lab, Johns Hopkins Medicine May 2025 - Present
Undergraduate Research Assistant

- Investigate role of m6a RNA modifications in embryonic cardiac development in iPSC-derived cardiomyocytes and mice

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 Sediation in the Pediatric ICU Aug 2024 - Present
Undergraduate Research Assistant

- Co-write and be awarded $50,000 Malone Seed Grant for interdiscplinary 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 pharmacokinetics with Runge-Kutta methods

Clark Lab, Johns Hopkins University Jan 2025 - May 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

McCallion Lab, Johns Hopkins Medicine May 2024 - Dec 2024
Undergraduate Research Assistant

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

Projects

Risk Agent | github.com/dyao13/risk_agent Apr 2025 - June 2025

- 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

Patient Referral Scheduler | github.com/dyao13/RefMe Jul 2024 - Aug 2024

- Co-wrote and was awarded $1000 JHU Catalyst Award for early-stage research and development
- Optimized scheduling of patient referrals from a stochastic data stream to prioritize high-urgency patients in R
- Computed solutions via Monte Carlo methods and integer linear programming to yield a 25% improvement over a first-come-first-serve model
- Verified model with 10 years of retrospective data from Hospital Cepon, Florianopolis, Brazil

Brawl Stars Draft Engine | github.com/dyao13/BrawlStars Jul 2024 - Aug 2024

- 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

- 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 Baltimore, MD
Treasurer Aug 2025 - Present

Charm City Science League Baltimore, MD
Mentor Oct 2023 - Present

Hippocrates Med Review Baltimore, MD
Treasurer, Writer Sep 2023 - Present

Hopkins Symphony Orchestra Baltimore, MD
Cellist Sep 2023 - Present

Supporting Hospitals Abroad with Resources and Equipment Baltimore, MD
Shift Leader Sep 2023 - Present

Johns Hopkins Math Tournmament Baltimore, MD
Writer Dec 2024 - Apr 2025

Organic Chemistry Initiative Baltimore, MD
Lecture Team Mar 2024 - Dec 2024