Daniel Yao

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Education

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

Skills

Languages: Python, R, Julia, SQL, Node.js, Bash
Technologies: pandas, NumPy, SciPy, scikit-learn, PyTorch, Matplotlib, ggplot2, Jupyter

Experience

Johns Hopkins University Aug 2024 – Present
Teaching Assistant

- Lead 30-student weekly recitation sections for upper-level EN.553.420 Probability

McCallion Lab, Johns Hopkins Medicine May 2024 – Present
Undergraduate Research Assistant

- Edit iPS cells with CRISPR Del/Rei to investigate the role of cis-regulatory elements in Parkinson's Disease
- Analyze scRNA-Seq data with Seurat R package to study transcriptional differences in Parkinson's-positive mice

University of Wisconsin-La Crosse Jun 2022 – Aug 2022
Research Intern

- Investigated the specific roles of CRF1 and CRF2 receptors in stress-induced increase in intestinal permeability
- Assayed transcellular and paracellular flux through mucosa/submucosa tissue taken ex vivo from mice
- Authored first draft of published abstract: doi.org/10.1152/physiol.2024.39.S1.815

Projects

Pediatric Sedation Assessment | github.com/dyao13/PedAccel Aug 2024 - Present

- Develop machine-learning model to calculate sedative dosages for pediatric critical-care patients
- Extract heart-rate variability features from 250 Hz electrocardiogram data in time and frequency domains and analyze nonlinear features with Poincare maps using SciPy, Matplotlib, and neurokit in Python

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

- Search 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
- Optimize weights of individual and pairwise effects in SciPy to estimate win probability with 92% accuracy
- Scrape e-sports games using beautifulsoup4 in Python and log ranked games with BrawlStarsAPI in Node.js

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

- Optimize scheduling of referrals into a hospital from a stochastic data stream to prioritize high-urgency patients
- Compute solutions via Monte Carlo methods and integer linear programming with lpSolveAPI in R to yield a 25% improvement over a first-come-first-serve model
- Parallelize across 10 clustered CPUs to improve runtime by 12000x compared to laptop performance

ARTIS Over-the-Counter Hearing Aids Jan 2024 - May 2024

- Develop mobile application to match patients to over-the-counter hearing aids backed by VC firm ARTIS
- Train multiple regression model to map responses to a 25-component questionnaire to hearing aids in Python
- Cluster and visualize audiometric profiles of 3000 NHHES participants with UMAP, DBSCAN, and ggplot2 in R