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, Bash
Technologies: pandas, NumPy, SciPy, scikit-learn, PyTorch, Matplotlib, ggplot2, Jupyter, Git

Experience

Johns Hopkins University Aug 2024 – Present
Teaching Assistant
- Lead 30-student weekly recitation sections for EN.553.420 Probability
- Write 40-page review for EN.553.431 Honors Mathematical Statistics: github.com/dyao13/EN_553_431_FA24

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
- 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 in Python
- Optimize existing preprocessing pipeline of 100 GB of ECG data with binary search for a 1000,000x speedup
- Extract heart-rate variability features from 250 Hz ECG data in time and frequency domains and analyze nonlinear features with Poincare maps using SciPy, scikit-learn, and neurokit
- Train multiple linear regression model to predict sedation state with ECG features with 85% accuracy

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
- Optimized weights of individual and pairwise effects in SciPy to estimate win probability with 92% accuracy
- Scraped e-sports games using beautifulsoup4 logged 100,000 ranked games with BrawlStarsAPI

Patient Referral Scheduler | github.com/dyao13/RefMe Jul 2024 - Aug 2024
- Optimized scheduling of patient referrals from a stochastic data stream to prioritize high-urgency patients
- Computed 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
- Parallelized across 10 clustered CPUs to improve runtime by 12000x compared to laptop performance

ARTIS Over-the-Counter Hearing Aids Jan 2024 - May 2024
- Analyzed profiles and preferences of patients with mild-to-moderate hearing loss with goal to develop a mobile app marketplace for over-the-counter hearing aids backed by venture capital firm ARTIS
- Clustered and visualized 3300 audiometric profiles with UMAP, DBSCAN, and ggplot2 in R