https://github.com/inlandleaf

ZACHARY DANA

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EDUCATION

Santa Cruz, CA — **University of California Santa Cruz, Baskin School of Engineering** — **June 2020 – June 2024**

- **Major**: Network and Digital Technology BA
  - **Computer Science Coursework**: Software Engineering Design, Applied Machine Learning: Deep Learning, Data Structures and Algorithms, Principles of Computer Systems Design, Computer Architecture, Computer Systems and C Programming, Computer Systems and Assembly Language, Computer Networks, Programming Abstractions: Python
  - **Mathematics Coursework**: Linear Algebra, Vector Calculus, Calculus for Science Engineering and Mathematics, Applied Discrete Mathematics, Probability and Statistics for Engineers

EMPLOYMENT

Data Scientist & Engineer, Intern — **Vironix Health** — **Mar 2024 – Present**

- Developed and optimized multiple ML and statistical models, including Extreme Gradient Boosting, Deep Neural Networks, Residual Neural Networks, and Cox Proportional Hazards, to predict the risk of chronic kidney disease degeneration
- Performed advanced data engineering and SQL-based manipulation to organize and prepare extensive medical datasets for model training and statistical analysis

Research Assistant — **Holy Addiction Care Recovery** — **June 2023 - Jan 2024**

- Developed a Cox Proportional Hazard Regression model to analyze group therapy attendance data, demonstrating up to 87.5% acceleration in patient addiction rehabilitation timelines
- Designed a robust SQL relational database to protect patient confidentiality and optimize data organization for over 500 patients
- Implemented statistical analyses including Shapiro-Wilk, D'Agostino's K-squared, and Mann-Whitney U tests to distinguish attendance patterns between successful and unsuccessful addiction rehabilitation cohorts

TECHNICAL EXPERIENCE

Projects

- **Leash Bio - Predict New Medicines with BELKA** (Spring 2024)
  - Implemented deep learning networks for the Leash Bio BELKA Kaggle competition, analyzing a dataset of over 133 million molecule-protein interactions to predict binding affinities for drug discovery. Python, SQL
- **Computer Vision Security System Full Stack Web App** (Spring 2024)
  - Implemented a live-video feed security surveillance web application integrating the YOLOv8 computer vision model to provide object detection and detailed analytics of surveillance feeds. Python, MongoDB, HTML, JavaScript, CSS
- **Multithreaded HTTP Server** (Winter 2024)
  - Implemented a multithreaded HTTP server, efficiently handling concurrent requests and optimizing server responsiveness through advanced synchronization mechanisms and a robust thread-pool architecture. C

ADDITIONAL EXPERIENCE AND AWARDS

- **Mathematical Problems in Industry (MPI) Conference** (Summer 2024)
  - Led a team of 12 applied mathematics PhDs and industry professionals in developing data science approaches for risk stratification of chronic kidney disease at the annual MPI Workshop, hosted by the Society for Industrial and Applied Mathematics (SIAM)
- **VEX U World Championship** (Summer 2021)
  - Competed in the VEX U World Championship global robotics contest representing team EZ3

Languages and Technologies

- Python; C; C++; JavaScript; HTML; CSS; NodeJS; React; SQL; MongoDB; R
- Visual Studio; Git; Amazon Web Services; Google Cloud; BigQuery; Interface Builder Windows PowerShell