Zhihao (Johnson) **Du**

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Links

Github
github.com/JohnsonJDDJ

Personal Website
zhihao.myxd.place
(for info on all projects)

Skills

Languages
HTML+CSS (since 2017)
Python (since 2017)
SQL (since 2019)
Java (since 2020)
R (since 2020)
C (since 2021)

Coursework
Natural Language Processing
Neural Networks
Statistical Learning
Service Operations Design
Database Systems
Reproducible Data Science
General Linear Models
Data Structures
Machine Structures
Linear Algebra
Probability Theory

Tools/Frameworks
Python Frameworks:
- Scikitlearn (since 2021)
- Pytorch/Jax (since 2022)
- Flask (since 2023)
Git (since 2020)
MS Azure (since 2022)
DBeaver (Summer 2021)
Unix System
Microsoft Office

Education

Note: Applying for master's program with expected graduation date: 05/2024.
University of California, Berkeley Expected graduation date: 05/2023
B.A. Statistics, B.A. Computer Science | GPA: 3.8/4

Professional Experience

ETL Engineer Intern DataCVG Co Ltd | Shanghai, China | 05/2021 - 08/2021
Successfully optimized the database system of the client FosunPharma as part of the database services team. Engineered directly on the client's pharmaceutical database system by designing and implementing extract-transform-load (ETL) pipelines on semi-confidential relational data:

- Collectively designed target relational database architecture containing 100+ distinctive tables with ER diagram;
- Independently submitted >50% of the queries programmed to merge data from two source databases for the pipeline constructed with DBeaver;
- Debugged and overcame architecture failures through long diagnostic process and extensive communication with PM and client representatives

Academic Experience

Research Assitant Real-time audio emotion classification | 01/2022 - Present
Advised by Prof. Dacher Keltner, assembled a police aggression discernment and early warning system powered by a parallel CNN Transformer neural network using pytorch, librosa, and pyaudio. The system is capable to classify emotions from streaming real-life audio speech data:

- Trained the network using large emotional databases (RAVDESS, SAVEE) through MS Azure cloud compute platform;
- Spearheaded training data preprocessing with robust data augmentation techniques including Gaussian white noise, simulated room impulse response, and randomly sampled background noise, boosting performance at evaluation time to 71%;
- Realized real-time audio streaming and continuous model evaluation on a Raspberry Pi 4 device

Tutoring: Deep Neural Networks 01/2023 - Present

- Engineered tool for automatic code solution removal on jupyter notebook assignments;
- Led weekly discussion sections on course materials and provided support for students during homework parties

Technical Projects

Domain and language translation on PINNs 11/2022 - 12/2022
Composed a comprehensive and self-contained homework assignment with solution on hand-crafting a Physics-Informed Neural Networks (PINNs). Demonstrated key merits of PINNs compared with traditional architectures using minimal compute and memory requirement, achieving outstanding distributivity and reproducibility.

zilean: package for data mining and engineering pipelines 05/2022 - 08/2022
Advised by Prof. Fernando Pérez, developed python package "zilean" that bridges the Riot Games API with traditional python ML APIs through implementing customizable data crawler objects and domain specific data manipulator objects:

- Designed customizable and automatic data crawler using rate limiting API request algorithms;
- Constructed data mining algorithms incorporating domain specific knowledge for large semi-structured data from the API using native python libraries;
- Produced data pipelines for multidimensional data ready for downstream ML or DL tasks;
- Utilizing this tool, predicted League of Legends match outcomes with game statistics before the 16 minute mark by tuning a random forest classifier and a XGBoost classifier through sklearn and hyperopt