

Yuxuan Zhang

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RESEARCH AND PROJECTS

HIV Viral Sequence Analysis

August 2023 – Present

- Trained and tested latent probabilistic models on HIV protein sequence alignment data with a focus on variational auto-encoder.
- Researching novel approaches to modeling higher order interactions in viral sequences to capture drug-resistant epistasis.
- Work under the Lyumkis Lab at Salk Institute.

Medilora

October 2023 - December 2023

- Led Medilora project to fine-tune large language models with quantized low-rank adaptation.
- Achieved comparable medical benchmark performance with 0.05% of the training data required by larger medical models, demonstrated effectiveness of small pretrained models.
- Implemented quantization, inference, and benchmark code, providing insights into model performance scaling.

Open-ended Document Classification

April 2023 – June 2023

- Adapted the recursive summarization method in 2109.10862 to generate class labels on various scientific papers.
- Conducted experiments using OpenAI ChatGPT API and local BERT models from HuggingFace Transformers.

WORK EXPERIENCE

Teaching Assistant

April 2023 – August 2023

Hahcioğlu Data Science Institute, UC San Diego

San Diego, CA

- Head TA for DSC 30: Data Structures & Algorithms, helped design new programming assignments and unit tests in Java, led discussion sessions to clarify students' queries.

Software Engineer

December 2021 – July 2022

Awesung Inc.

Cranbury, NJ

- Developed the internal logistics management dashboard with React.js and Django. Optimized database queries, reducing API response times by 50% for top five most-used queries.
- Revamped the relational database schema, achieving more than 20% reduction in average serialization time.
- Led the eBay Verification initiative for company warehouses; developed an ETL pipeline and integrated untapped operational data, resulting in a more than 15% reduction in Item-Not-Received rate within 2 months.

Software Engineer Intern

October 2020 – December 2021

AILaw

Remote

- Shipped new features and unit tests in Vue.js for a legal workflow management app.
- Restored and optimized a defunct daily reporting script, reducing runtime by over 20% and enabling the recovery of a dozen clients within two months.

EDUCATION

University of California San Diego

La Jolla, CA

M.S. Data Science

Sep. 2022 - Present

- **Courses and Involvements** Attention/Diffusion Reading Group, RL/LLM seminar, Maths of Deep Learning, Learning Algorithms, Classical Statistical Modeling, Search and Optimization, Text Data Mining

University of Washington Seattle

Seattle, WA

B.S. Informatics — Major GPA: 4.0

Sep. 2017 - Jun. 2021

TECHNICAL SKILLS

Programming: Python, Java, SQL (Postgres), JavaScript, R

Libraries: Tensorflow, PyTorch, Jax (Equinox), Pandas, NumPy, Matplotlib

Frameworks: React, Node.js, Flask, JUnit