

James Zhao

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EDUCATION

Carnegie Mellon University

M.S. in Machine Learning

Pittsburgh, PA

Expected Dec 2024

- *Relevant Coursework:* Advanced Introduction to Machine Learning, Probability and Statistics, Advanced NLP

University of California, San Diego

B.S. in Computer Science & Minor in Mathematics

La Jolla, CA

June 2023

Cumulative GPA: 3.985 / 4.0 | **Major GPA:** 4.0 / 4.0

- *Relevant Coursework:* Data Structures and Algorithms, Deep Learning, Recommender Systems, NLP, Computer Vision, Probabilistic Reasoning, Computer Security, Networks, Databases, Convex Optimization, Reinforcement Learning
- *Honors/Awards:* Summa Cum Laude, Engineering Honors (Tau Beta Pi, Eta Kappa Nu)

EXPERIENCE

DoorDash

Full-Stack Software Engineer Intern

San Francisco, CA

June 2023 – Sep 2023

- Architected and implemented an identity verification dedupe system for DoorDash's internal Fraud Workstation Platform
- Serviced **240,000** dashers with **100 write QPS** and **50ms** latency, decreasing Average Handling Time by **3 minutes**
- Constructed UI components in **React**, BFF endpoints in **Typescript**, and **Kafka** event consumers & **gRPC** endpoints in **Kotlin** to dynamically persist user verification statuses in a **PostgreSQL** database

DoorDash

Full-Stack Software Engineer Intern

San Francisco, CA

June 2022 – Sep 2022

- Migrated internal Django monolithic entity tooling to microservice-based architecture, serving **200,000** daily requests
- Developed GraphQL BFF endpoints in **Typescript**, and built **React** front-end components to dynamically auto-generate and validate form schemas for flexibly searching, editing, creating, and deleting arbitrary database entities
- Expanded backend authorization for CRUD endpoints for **14,000** support users and integrated Elasticsearch indexing in **Kotlin**

Scripps Institution of Oceanography – UC San Diego

Machine Learning Programmer

La Jolla, CA

Jan 2022 – June 2022

- Experimented with image processing techniques and Vision Transformers to enhance plankton image classification, achieving an accuracy of **87.66%**
- Constructed and deployed web applications in **Plotly** and **Dash** to visualize experiment results, inspect mis-classified images and confusion matrices, and efficiently compare **100,000** individual images within plankton datasets

The Cottrell Lab – SMART 4.0

Research Assistant

La Jolla, CA

Jan 2021 – June 2023

- Identified and validated different architectures and methods on improving molecular fingerprint classification accuracy and F1-score from Nuclear Magnetic Resonance and Mass spectra data using **PyTorch Lightning**
- Improved upon previous CNN-based architectures through transformers, feature engineering, and positional encoding of spectra data in terms of cosine similarity and informational-retrieval metrics, obtaining a **Recall@1** of **0.9**
- Prototyped architectures using multimodal (**CLIP**) and language modeling (**BART**) techniques to generatively predict molecular SMILES strings and obtain latent representations of spectral data

EXTRACURRICULARS

University of California, San Diego - Computer Science Tutor

Sep 2022 – Dec 2022

- Tutored undergraduate students in Deep Learning by holding office hours and answering online forum questions
- Created exams and graded programming assignments related to Perceptron's, CNN's, RNN's, and Transformers

TritonUAS – UAV Competition Club

Oct 2019 – Jan 2021

- Implemented CNN-based image segmentation for shapes and characters through a U-Net, surpassing previous morphological methods and attaining an Intersection-Over-Union of **0.99** on generated images

SKILLS

Languages: Python, Javascript/NodeJS, Java, Kotlin, SQL, Rust, C#/.NET, HTML, C, C++, Haskell

Libraries/Frameworks: PyTorch / PyTorch Lightning, Numpy, Matplotlib, Scikit-learn, React, gRPC, Bootstrap

Other Tools: Git, Latex, Bash, Make, Maven, Kubernetes, Powershell