James Zhao

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EDUCATION

Carnegie Mellon University **Pittsburgh, PA**
M.S. in Machine Learning *Expected Dec 2024*
- *Relevant Coursework:* Advanced Machine Learning, Probability and Statistics, Advanced NLP

University of California, San Diego **La Jolla, CA**
B.S. in Computer Science & Minor in Math *June 2023*
Cumulative GPA: 3.985 | **Major GPA**: 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 **San Francisco, CA**
Full-Stack Software Engineer Intern *June 2023 – Present*
- Architected and implemented an end-to-end identity verification system for DoorDash's internal Fraud Workstation Platform
- Serviced **240,000** dashers with **100 write QPS** with **50ms** latency, decreasing Average Handling Time by **3 minute**s
- Constructed UI components in **React** & BFF endpoints in **Typescript** and built **Kafka** event consumers and **gRPC** endpoints in **Kotlin** to dynamically update user verification statuses

DoorDash **San Francisco, CA**
Full-Stack Software Engineer Intern *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 in **Kotlin**

The Cottrell Lab – SMART 4.0 **La Jolla, CA**
Research Assistant *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

Scripps Institution of Oceanography – UC San Diego **La Jolla, CA**
Machine Learning Programmer *Jan 2022 – June 2022*
- Experimented with image processing techniques and Vision Transformers to enhance plankton image classification accuracy, achieving an accuracy of **87.66%**
- Constructed and deployed web applications in **Plotly** and **Dash** to visualize experiment results, inspect mis-classified images, and efficiently compare **100,000** individual images within plankton datasets

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 on images of 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, Rust, C#/.NET, HTML, Kotlin, C, C++, Haskell
Libraries/Frameworks: PyTorch, React, jQuery, Protobuf, gRPC, Bootstrap, Numpy
Other Tools: Git, Latex, Bash, Make, Maven, Kubernetes