Jonas Li

University of California, Berkeley 2024-2025
M.ENG., Electrical Engineering and Computer Sciences in Robotics
Shanghai University 2020-2024
B.ENG., Computer Science, Rank: 1/31, GPA: 3.78

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WORK EXPERIENCE

Momenta Software Engineer Intern | Shanghai, China ***Feb 2024 – June 2024***
Python/Algorithm Development/Data Processing/Clustering/Git

- Developed a **clustering algorithm** to detect stuck states in autonomous vehicles, boosting recovery performance of GM Cadillac Lyric by **3%** across **800+ real** parking test cases in **30+** garages within **4 months**
- Engineered a robust checker to detect prolonged braking stops, achieving **98%** accuracy in identifying stuck states and reducing false positives by **15%**, enhancing simulation reliability across **15,000+ events**
- Partnered closely with the product manager and designed a **Python class library** to automatically process **36,000+** simulation reports across **6** parking scenarios, improving analysis efficiency by **87.5%**

RESEARCH

Mechanical Systems Control Lab at UC Berkeley| Directed by Prof. Masayoshi Tomizuka ***Sept 2024 – Present***
Python/Reinforcement Learning/Kinematics

- Generate 3D simulation environment with randomly instantiated obstacles with python-timor library
- Develop **Reinforcement Learning** algorithms to optimize the mechanical design of modularized robot arm

Visual Explainer For Deep Learning Decisions | Research Assistant ***Sept 2023 – May 2024***
*Developed a **web application** for explaining DNN image classification decisions*

- Utilized 2-stage **semantic segmentation** to process 1000+ images from 20 classes in IMAGENET
- Trained an **AutoEncoder** using **PyTorch** to construct an image tree with outputs of DNN feature extractor
- **Clustered** two-level image features respectively to identify human cognition-aligned concept for explanation
- Showcased the explanation result through heatmaps by developing a **Vue+Django+MySQL** based web application

Mining Property Relations of NASICON Solid Electrolyte | Research Assistant ***Sept 2021 - May 2023***
*Developed a **web application** for investigating relations between material properties*

- Formalized a data pipeline for NASICON-related texts, integrating pre-processing, **BERT-based NLP models** for Named Entity Recognition (**NER**) and Relational Extraction (**RE**), and visualization
- Pre-processed **7,000+** high-quality NASICON literature **sentences** to enhance NER and RE model performance
- Visualized entity-relation triples using **Neo4j knowledge graph** and Py2neo for user-friendly interaction
- Implemented the processing pipeline utilizing **Vue+SpringBoot+MySQL/Neo4j**

PROJECTS

MealMate: An AI-Powered Drive-Thru Solution ***Sept 2024 - Nov 2024***

- Designed the sequential chat of 3 LLM agents using AutoGen to analyze user requirements and generate responses
- Implemented data processing functions as tools to be called by LLM agents
- Developed a website using React.js+flask to showcase the solution

DJI RoboMaster Competition | Team Leader & Computer Vision Engineer ***Sept 2020 - June 2024***
C++/OpenCV/YOLOv7/Real-time system/Linux/Least squares

- Led a **40-student** team to build **8 types** of robots from scratch to product, winning the **3rd place in RoboMaster 2023**
- Developed a **real-time auto-aim system** with monocular camera input for **mobile robots** on NVIDIA NX, achieving **60 fps** with over **90%** accuracy in **C++/Linux** using **OpenCV** and **YOLOv7** for object detection
- Implemented a **trajectory prediction** algorithm using a **least squares** algorithm, improving system efficiency by **50%**

FIRST Tech Challenge | Team Leader, 14263/16107 F.G.(Facing The Giants) ***Sept 2017 - Jan 2020***

- Developed an autonomous system using motor encoders, color sensors, and Vuforia/TensorFlow SDK for controlling and detection, achieving highest score in Shanghai Regional with human driver imitating strategy
- Led the team to achieve 2 admissions into FIRST World Championships in 2018&2019(top 2.1 % out of 7500 teams), 1 Inspire Award(top 1 out of 40 teams), and 3 Connect Awards(top 8% out of 60 teams)

SKILLS & AFFINITIES

Programming: Python, C++, SQL, Git, Linux, Figma, Neo4j, AWS, PyTorch, OpenCV, Vue.js, Django
Domain Expertise: Reinforcement Learning, Computer Vision, Deep Learning, product management
Affinities: **DJI** *Event Tech Support Lead* (Apr 2024) **| FIRST** *Lead Robot Inspector* (Jan 2024), *Robot Inspector* (Mar 2021)