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

linkedin.com/in/yunzhe-l-991638151/
github.com/LIYunzhe1408
liyunzhe.jonas@berkeley.edu
5102777856

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*
Python/PyTorch/AutoEncoder/Semantic Segmentation/Django/Vue.js

- Designed a 2-stage **semantic segmentation** and an **AutoEncoder** with tree constraints to extract and rank concepts by importance using Shapley Value, boosting consistency score by **35%** on **1000+** images from **20 ImageNet classes**
- Developed a **Django backend APIs** for page navigation, handling **GET** and **POST** requests, and efficient data retrieval
- Built a **Vue.js frontend** showing features such as user login, image segmentation, and contribution heatmap visualization

Mining Property Relations of NASICON Solid Electrolyte | Research Assistant   *Sept 2021 - May 2023*
Python/Java/Vue.js/SpringBoot/Py2Neo/Neo4j/BERT

- Labeled 7,000+ high-quality NASICON literature sentences, improving Named Entity Recognition (NER) model performance by 5% in precision, 3% in recall, and 4% in F-1 score
- Developed a BERT-based data processing pipeline to extract **106,896** material entities and **260,475** entity-relation triples from **1,808** NASICON-related literature sources, with efficient storage in Neo4j and MySQL as backend database
- Built a **Vue.js**-based platform, enabling material scientists to explore material property relationships

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)