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%

TECHNICAL LEADERSHIP

Cal Hackthon 11.0 | A LLM-Powered Drive-Thru Solution | Team Leader *Sept 2024 - Nov 2024*
Deepgram/AutoGen/Flask/Vue.js/Fine-tuning

- Designed a **sequential chat** system with 3 **LLM agents** using **AutoGen** to analyze user requirements and generate ordered items, achieving 0.9551 cosine similarity, 0.2712 ROUGE-L, and 0.881**1** BERT F1 score.
- Developed data processing functions and effective prompts for **LLM agents**, and integrated **Deepgram API** in a **Flask backend** to convert **speech to text** for **real-time** drive-thru interaction, achieving 85% successful transactions

DJI RoboMaster Competition (4 Years) | Team Leader & Computer Vision Engineer *Sept 2020 - June 2024*
C++/OpenCV/YOLOv7/Real-time system/Linux/Least squares | **Git repo** | **Video**

- 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 (3 Years) | Team Leader, 14263/16107 F.G.(Facing The Giants) *Sept 2017 - Jan 2020*
TensorFlow/OpenCV/Leadership/Motor control/Rule-based strategy | **Team Documentary**

- Developed an autonomous system using motor encoders, color sensors, and **OpenCV/TensorFlow SDK** for control and 95%+ accurate **detection**, achieving **highest** score in the Regional with **rule-based** human driver imitating strategies
- Led the team to achieve 2 admissions into FIRST World Championships in 2018&2019(**top 2 %** out of 7500 teams globally), 1 Inspire Award(**1st** out of 40 teams), and 3 Connect Awards**(top 8%** out of 60 teams)

RESEARCH

Visual Explainer For Deep Learning Decisions | Research Assistant *Sept 2023 – May 2024*
Full stack/Python/PyTorch/AutoEncoder/Semantic Segmentation/Django/Vue.js | **Demo Video**

- 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*
Full stack/Python/Java/Vue.js/SpringBoot/Py2Neo/Neo4j/BERT/Element UI

- 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** platform with **Element UI**, **routing**, and **state management**, allowing materials scientists to identify target texts in literature and convert them into a **knowledge graph** to explore relationships between material properties

SKILLS & AFFINITIES

Programming & Framework: Python, C++, PyTorch, ROS, SQL, Linux, Vue.js, Django
Library & Tools: OpenCV, AutoGen, Deepgram, Py2Neo, Timor-Python, Transformers, Git, Neo4j, AWS, Galileo AI, Figma
Affinities: **DJI** *Event Tech Support Lead* (Apr 2024) **| FIRST** *Lead Robot Inspector* (Jan 2024), *Robot Inspector* (Mar 2021)