Jonas Li

University of California, Berkeley 2024-2025
M.ENG., Electrical Engineering and Computer Sciences

Shanghai University 2020-2024
B.ENG, Computer Science, Rank: 1/31, GPA: 3.78

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SKILLS

Programming & Tool: ***Python***, ***C++***, SQL, MATLAB, Java, JavaScript, ***Git***, ***Linux***, JIRA, Figma, Neo4j, AWS, Unity, ***Issac Sim***
Library & Framework: ***PyTorch***, ***OpenCV***, ***ROS***, Matplotlib, Numpy, Pandas, PyDocx, Py2neo, Vue.js, Django
Domain Expertise: Reinforcement Learning, ***Computer Vision***, Deep Learning, camera calibration, ***product management***

RESEARCH & APPLICATION

DJI RoboMaster Competition | Team Leader & Computer Vision Engineer *Sept 2020 - June 2024*
Director of a 40-student team to build 8 types of robots from scratch to product

- Coordinated resources to promote R&D progress, winning the **3rd in RoboMaster 2023 University League**
- Developed a **real-time auto-aim system** for **mobile robots** on NVIDIA NX in **C++/Linux** environment
- Processed video inputs from **Hikvision industrial cameras** with **OpenCV** to support **object detection**
- Implemented a **trajectory prediction** algorithm using **least squares** method, improving efficiency by **50%**
- Co-designed an **user interface** for robot **manipulation**, outperforming **80%** teams in the match

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

- Utilized **semantic segmentation** followed by superpixel segmentation to extract two-level image features
- 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**

WORK EXPERIENCE

Mechanical Systems Control Lab at UC Berkeley| Directed by Prof. Masayoshi Tomizuka *Sept 2024 – Present*
Manipulation in complex scenes with Unitree H1 humanoid robot

- Generate 3D simulation environment with randomly instantiated obstacles in **NVIDIA Isaac Sim**
- Develop **Reinforcement Learning** algorithms to optimize the mechanical design of modularized robot arm
- Develop the **feedback loop** in generated 3D environment to **evaluate** the performance of RL-optimized design

Momenta Product Manager Intern | Shanghai, China *Feb 2024 – June 2024*
*Product management of **autopilot** software for **GM Cadillac** in challenging underground **parking scenarios***

- Composed product **requirement** documents by leveraging data from 5 drivers with 20+ years' driving experience
- Wrote a **Python class library** to extract and format extensive Microsoft Word test reports using PyDocx
- Pioneered a data processing tool for automatic report generation, improving efficiency in issue analysis by **87.5%**
- Boosted performance by **3%** in simulation, road, and bench tests within **4 months** since the first version released

DJI Event Technical Executive | Hybrid *Dec 2023 - Apr 2024*
*Served as **head referee** for a national college robotics competition with 35+ teams in China*

- Made **final judgement** on cases of violating rules during events
- Managed **technical troubleshooting** and safety issues, ensuring event flow and equipment functionality
- Facilitated meetings for event coordinators regarding **event schedule**, event logistics, etc.