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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](https://github.com/SRM-Vision/SRM-Vision-2022)****[auto-aim system](https://github.com/SRM-Vision/SRM-Vision-2022)** 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](https://youtu.be/4uyBBJRXUTg?si=80UQl4XUI1jgoO8v)** algorithm using **least squares** method, improving efficiency by **50%** * Co-designed an **user interface** for robot **[manipulation](https://youtu.be/qeRvdmcNFAc?si=yQyzGJ-NP-a8Mt2P)**, outperforming **80%** teams in the match | | |
| **Visual Explainer For Deep Learning Decisions** | Research Assistant | | *Sept 2023 – May 2024* |
| *Developed a* ***[web application](https://youtu.be/HcAEPgrM9zM?si=So6fE4QUxAaH5xpb)*** *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. | | |

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| **[DJI](https://www.dji.com/)** Event Technical Executive| Hybrid | *Dec 2023 - Apr 2024* |
| *Served as* ***head referee*** *for a national college robotics competition with 35+ teams in China*   * Managed **technical troubleshooting** and safety issues, ensuring event flow and equipment functionality. | |

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| **[Mechanical Systems Control Lab](https://msc.berkeley.edu/)** at UC Berkeley| Directed by Prof. [Masayoshi Tomizuka](https://me.berkeley.edu/people/masayoshi-tomizuka/) | *Sept 2024 – Present* |
| *Manipulation in complex scenes with humanoid robot*   * Develop **object recognition** for fine-grained grasping on **Unitree H1** humanoid robot | |