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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](https://youtu.be/HcAEPgrM9zM?si=So6fE4QUxAaH5xpb)*** *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](https://github.com/SRM-Vision/SRM-Vision-2022)****[auto-aim system](https://github.com/SRM-Vision/SRM-Vision-2022)** 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](https://youtu.be/4uyBBJRXUTg?si=80UQl4XUI1jgoO8v)** 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](https://theorangealliance.org/teams/14263?season_key=1718)**&**[2019](https://theorangealliance.org/teams/16107?season_key=1819)**(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) | |