

# JIARUN WEI

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## EDUCATION

- Carnegie Mellon University** 09/2020 – 05/2022  
*Master of Science - Mechanical Engineering* Pittsburgh, PA  
**Courses:** Deep Learning, Computer Vision, Java for Application Programmer, Machine Learning
- University of California, Berkeley** 01/2019 – 12/2019  
*Exchange Study - Concurrent Enrollment* Berkeley, CA  
**Courses:** Feedback Control of Legged Robots, Introduction to Control of UAV, Model Predictive Control
- Dalian University of Technology** 09/2016 – 06/2020  
*Bachelor of Engineering - Mechanical Engineering* Dalian, CN  
**Courses:** C Programming, Fundamentals of Controls, Digital Circuits

## EXPERIENCE

- Tensor Auto (previously Autox Inc) | [Company Website](#)** 06/2022 – Present  
*Software Engineer, Motion Planning Team* San Jose, CA
  - Developed traffic rule extractors to formalize vehicle's behavior at traffic lights, stop signs, crosswalks, etc.
  - Implemented the traffic light reasoner to infer occluded and unrecognized lights based on surrounding objects.
  - Improved the stability of decision on crosswalk by simplifying the geometric form of optimization constraint.
  - Developed the component to score and filter trajectories from learning based planner inspired by human.
  - Designed yellow traffic light violation cost in both time and space dimension for smooth and agile reaction.
  - Designed collision cost in both elastic and inelastic form to make the prediction of impact more accurate.
  - Integrated interactive prediction cost into vehicle's decision to improve the safety of vulnerable road users.
  - Implemented the data pipeline for a learning based method that optimizes the trajectory filtering parameters.
  - Built an automatic evaluation system to classify and rank bad trajectories to accelerate the triage process.*Software Engineer, Integration Team* San Jose, CA
  - Brought up and triaged autonomous driving vehicle's AI and network system in several important demos.
  - Developed a web application to synchronize fleet status such as each vehicle's usage, AI system health, etc.
- Safe AI Lab, CMU | [Demo](#)** 09/2021 – 05/2022  
*Research Assistant* Pittsburgh, PA
  - Developed an autonomous delivery robot with Visual and Lidar perception by **C++** and **Python** in **Linux**.
  - Achieved stable localization by *FAST-LIO* algorithm with Solid State Lidar and Stereo Camera IMU in **ROS**.

## PROJECT

- Zombies-Infection Game | [Project repo](#)** 10/2021 – 12/2021
  - Implemented a third person shooting game based on Object Oriented Programming by **C++** and **OpenGL**.
  - Optimized the texture loading time during weapon switching based on a novel pointer management algorithm.
- Collision Check for Robot Arms | [Project repo](#)** 11/2020 – 12/2020
  - Designed a safety region generation approach for robot arm collision check by **Python** and **MATLAB**.
  - Implemented a self-designed algorithm to solve the geometric parameters of the safety region based on SVD.
  - Developed a CAD software plugin to calculate and visualize the safety region of 3D objects in arbitrary shape.

## SKILLS

- Languages:** C/C++, Python, Java, JavaScript, Shell Script, HTML, MATLAB
- Tool-kits:** Abseil, Protobuf, Git, Bazel, PyTorch, Latex
- Environment:** Linux, SSH, Vim, ROS, Docker