

# **Reimaging Transportation Hubs with Safe and Versatile Assistant Robots**

## **DATA COLLECTION**

### **What data will you collect or create?**

This research aims to enhance the testing procedures for Connected and Autonomous Vehicles by generating critical driving scenarios and using them to design a better proving ground infrastructure. Most data for robot training will be generated from a simulator. The simulation platform will be used to train versatile and safe policies for the robotic dog. We will also use the sensing system that is equipped on the robots to perceive real-world sensory data, such as LiDAR point cloud, vision information, and GPS, to help model the dynamic context and realize the simulation to real transfer. The team will finally provide a safe and versatile policy that can be deployed in the real world.

### **How will the data be collected or created?**

We will leverage on the open dataset such as InD or HighD and Waymo's publish driving data set. We will also collected data generated from realistic simulators.

## **DOCUMENTATION AND METADATA**

### **What documentation and metadata will accompany the data?**

Each 3D semantic map instance will be accompanied with (1) the geometric information, such as the location, of each component appeared in the scenario, (2) the semantic information, such as the object type, of each component in the map, (3) the description of the scenario in the map.

## **ETHICS AND LEGAL COMPLIANCE**

### **How will you manage any ethical issues?**

The ethical issues will be reported to the PI's university and subject to the university's Ethics policy.

## **STORAGE AND BACKUP**

### **How will the data be stored and backed up during the research?**

All collected data will reside on PCs and workstations belonging to the PIs' university. A data server which is expected to have MySQL installed will be set up to store all the data and hold the web application. All data will be regularly backed up either onto multiple external hard drives, or a centralized backup cloud storage, to ensure full data recovery in the event of equipment failure. In the case of catastrophic failures, we will maintain both the data server and the web application indefinitely.

### **How will you manage access and security?**

Data derived from this project shall be retained for at least one year. The selected research results will be open source and shared to the research community through technical reports or publications. The data in this project does not contain private or confidential information. The research results belong to PI's university, selected result data and visualization can be obtained upon request by asking PI and research assistants.

## **DATA SHARING**

### **How will you share the data?**

Throughout the duration of the work, the PI will in a timely manner communicate any significant findings with the scientific community through journal publications, national and international conference presentations, and seminars. The reported results will be made available to the research community, where possible and permitted and upon request.