Semester Project Description:

Survey of Autonomous Driving Vehicles’ Modern Development

The project proposal is to survey various papers dealing with autonomous driving to deep dive into machine learning techniques applied in the field and discover modern developments/problems. This coincides with the Deep Learning project I’m doing using Waymo’s open dataset to better detect objects and label them appropriately, given images from LIDAR sensors with 6 camera views at any given time. Right now, it’s a race between many competitors to reach Level-4 capabilities (high driving automation). I’m interested in the problems currently challenging the industry. I think a survey would both complement and enhance my knowledge for my Deep Learning project and allow me to grasp the overarching concepts. I know there’s more multiple issues off the top of my head that autonomous driving is address, such as better labeling objects, vehicle dimensionality while driving, faster/better edge case identification and reaction times (identifying a sign knocked down, a deer darting across the road, etc…). I’m interested in all of the problems as they relate to machine learning as well as computer vision. I also believe the problems encountered with autonomous driving are very practical in a variety of cases across software engineering so I’m looking forward to learning a lot from this. The idea for my project is to identify as many different issues encountered with autonomous driving to reach level-4, summarize them, and provide input as to what techniques are being developed to work on these problems, capping off with what suggestions for what I could work on if I wanted to make contributions in this area.