Dominic Carrillo

DWCarrillo@outlook.com × git/dwc13 × in/dwc13 × Denton,TX

PhD. canidate specializing in Registration, Localization, Mapping, SLAM, Computer Vision, and Autonomous Systems in Autonomous Vehicles, under Dr. Qing Yang.

Education

PhD. Computer Science and Engineering **Aug. 2019 - Expect 2025**
University of North Texas, Denton, TX, USA

B.S. Computer Science and B.S. Mathematics **Aug. 2015 - Dec. 2018**
Sul Ross State University, Alpine, TX, USA

International Summer School Program **July 2018 - Aug. 2018**
Yonsei International Summer School, Seoul, Korea

Publications

Jingda Guo, **Dominic Carrillo**, Qi Chen, Qing Yang, Song Fu, Hongsheng Lu, Rui Guo. "*Slim-FCP: Lightweight Feature-Based Cooperative Perception for Connected Automated Vehicles*". IEEE Internet of Things Journal. 2022.

Sudip Dhakal, Deyuan Qu, **Dominic Carrillo**, Qing Yang, Song Fu. "*OASD: An Open Approach to Self-Driving Vehicle*". MetroCAD. 2021.

Jingda Guo, **Dominic Carrillo**, Sihai Tang, Qi Chen, Qing Yang, Song Fu, Xi Wang, Nannan Wang, Paparao Palacharla. "*CoFF: Cooperative Spatial Feature Fusion for 3-D Object Detection on Autonomous Vehicles*". IEEE Internet of Things Journal. 2021.

Research

F1TENTH Environment System in CIIMS Lab **June 2020 - Sept. 2021**
University of North Texas, Denton, TX
Constructed the F1TENTH system for CIIMS project. F1TENTHs are designed as an Autonomous Vehicle System, versatile open-source platform, for research and education e.g. reinforcement learning, robotics, communication systems, and much more.

Connected Autonomous Vehicles Lab **Aug. 2019 - Sept. 2021**
University of North Texas, Denton, TX
Exploration research in multiple different topics within the connected Connected Autonomous Vehicle field e.g Object Detection using 2D and/or 3D data fusion, Generative Adversarial Network, Deep learning models, Cooperative Perception with data sharing between vehicles, and Edge computing.

Projects

Raw Data Cooperative Perception on Autonomous Vehicles **Feb. 2021 - May 2021**
University of North Texas, Denton, TX
First preliminary study utilizing the F1TENTH Environment. Presented this work at 2021 CPS-IoT Week for Student Design Competition Networked Computing on the Edge which I have recieved award of $200 for an Honorable Mention on the Presentation. This study demonstrates that increasing the data gathered from other vehicles allows a single vehicle to detect objects that is obscured from it.

Comprehensive Analysis of TEASER and NDT for Autonomous Vehicle Applications **Aug. 2021 - Dec. 2021**
University of North Texas, Denton, TX
Evaluated algorithms performance between TEASER and NDT registration, both algorithms have claimed to be efficient and have a low computation than ICP. However, there is no correlated research of the two approaches. The project goal is conduct an experiment implementation of TEASER and the NDT algorithm on our vehicle.

The Impact of Accommodated Vehicle to Vehicle Communication **June 2017 - Oct. 2017**
McNair Scholar, Sul Ross State University, Alpine, TX, USA
The study of Vehicle to Vehicle communication with the response to decrease accidents on roadways. This is done by vehicle's relaying information to each other and provides a warning to the driver. This study offers a simulation built in Unity to demonstrate the impact of this communication system.

Creation of a Perfect Hockey Bracket **June 2016 - Oct. 2016**
McNair Scholar, Sul Ross State University, Alpine, TX, USA
Input National Hockey League statistical data into the Colley Method to manipulate matrices to rank the teams. From the ranks collected we deduce who is the potential 2016 Stanley Cup Champion and compare to actual results.

Work Experience

Graduate Research Assistant **June 2020 - Current**
University of North Texas, Denton, TX
Delegation of duties in the construction and development of the Polaris GEM Autonomous Vehicle from AutonomouStuff, F1TENTHs Environment System, and Autonomous Vehicle Demonstration.

Teaching Assistant **Aug. 2019 - May 2020**
University of North Texas, Denton, TX
Administered classes for students enrolled in courses; CSCE 1010 - Discovering Computer Science, CSCE 4600 - Introduction to Operating Systems.

Electrical Mechanic and Shop Hands **June 2014 - July 2019**
Carrillo's Automotive, Midland, TX
Diagnostic inspection on electrical issues for vehicles e.g. electrical break tracing, resistance measurement reading, or computer troubleshooting.

Organization

Society Hispanic of Professional Engineers **Apr. 2021 - Current**
Graduate Representative Officer

Technical Skills

Program Language - C# | C++ | Python | MATLAB | LaTeX | HTML | CSS
Computer Tools - VirtualBox | Git | Unity | PyCharm | Vim
Language - Fluent English | Basic Spanish | Elementary Korean
Operating System - Windows Linux