Automated Vehicle Workshop

April 25, 2020, 9:00 AM to 6:00 PM

DoubleTree by Hilton Hotel Santa Ana – Orange County Airport

201 E MacArthur Blvd, Santa Ana, CA 92707

https://ieee.org/sustech

The Automated Vehicle Workshop is a follow-up to SusTech that details applying open-source software and hardware to building your very own automated vehicle. The focus is on automating micromobility, providing SOV urban transportation that matches automotive performance, but using 45 times less energy. This one-day event features background on the opportunity and technologies, followed by hands-on experiments.

Transportation is a major challenge for energy sustainability. However, two-thirds of the 3T vehicle miles Americans travel annually are urban, typically at speeds of 60 km/h or less. Automated micromobility could handle many of these trips. The Elcano Project is an open-source hardware and software effort to prototype an autonomous covered tricycle controlled by Arduinos. Participation in the project has been limited by the need to obtain and modify a vehicle. This workshop introduces an interface kit that runs the Elcano software on the open-source CARLA driving simulator. Topics include:

- Introduction to Arduino programming in C++
- Automotive architecture, CAN bus and automation
- Architecture of the Elcano system
- Introduction to the Carla simulator
- Participants modify code and observe the effects in simulation
- Selected modified code runs on a physical autonomous vehicle
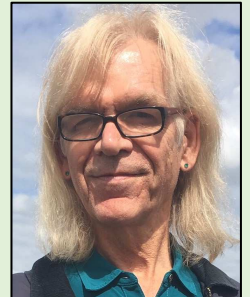
Workshop Leader and background resources

Tyler C. Folsom,
University of Washington, Bothell
Director of the Elcano Project

- Background: http://www.elcanoproject.org/documents/sustech2017_tfolsom.pdf
- Tricycle Automation: https://www.elcanoproject.org/wiki/Main_Page
- Vehicle Automation: https://highways.dot.gov/research/research-programs/operations/CARMA/
- Driving Simulator: http://carla.org/

Register: https://events.vtools.ieee.org/m/212777

Registration Fee: $150 IEEE Members; $65 Students; $200 Non-IEEE Members