

Cafer Avci

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Skills

Technical Skills: C, C++, Python, Aimsun, Sumo, Gurobi, Git, AWS, Matlab, GIS, CSS, HTML, React, SQL, Assembly, Micro-C, Arduino, Raspberry, Open-source developments.

Technologies: Project Management, Agile, Team Leadership, Data Analytics, AI, Optimization, Control, Dynamic Traffic Assignment, Agent-based simulation, Autonomous Vehicles, Traffic Modelling, Smart Mobility.

Professional Experience

- Postdoctoral Researcher of Civil and Environmental Engineering, Cornell University March 2023 – Present
- Lecturer of Digital System Modeling with Generative AI
 - Lead in Urban Technology, Environmental & Health Hub Development
 - Productization, Dev-Ops, building cloud-based infrastructure for digital twins and urban mobility analysis
- SW/Control System Simulation Engineer, National Electric Vehicle Sweden, Sweden June 2022 – March 2023
- Performing integrated traffic and vehicle simulations of autonomous shuttle
 - Theoretical open-source developments for traffic simulation environment and its optimization
 - Designing and developing interfaces for integrated user services and simulation environments
- Postdoctoral Researcher of Transportation Engineering, Aalto University, Finland June 2019 – June 2022
- Collaborative research in behavior modeling of multiple autonomous vehicles in mixed traffic condition
 - Macroscopic and microscopic traffic simulation in Aimsun
 - Participating multi-national various grant proposals
- Research Assistant of Computer Engineering, Yalova University, Turkey March 2011 – June 2019
- Conducting research related with MsC and PhD studies
 - Teaching programming languages including C, Mikro-C, C++, C#
 - Supervising students, managing projects, servicing department works
- Founder, Mihman Technology, Turkey March 2013 – June 2015
- Designing and developing portable traffic data logger and analyzer
 - Designing and planning the architecture of national intelligent transportation system for Turkey
 - Consulting, development and testing of software and hardware for ITS

Software Development

- [DLSim-MRM](#), Open-Source Dynamic Traffic Simulation Package with Multi-Resolution Models.
- [NeXTA4GMNS](#), Network explorer for Traffic Analysis for General Modeling Network Specification (GMNS).
- [GTFS2GMNS](#), General Transit Feed Specification (GTFS) to General Modeling Network Specification (GMNS).
- [MRMNetworkMerger](#), Open-Source Network Merger of Macroscopic and Microscopic Layers.

Education

- PhD of Computer Engineering*, Yildiz Technical University, Istanbul Turkey July 2018
- Visiting PhD Scholar of Transportation Engineering (1 year)*, Arizona State University, Tempe, AZ Feb 2017
- MSc of Computer Engineering*, Yalova University, Yalova, Turkey July 2012
- BSc of Computer and Control Technology (English)*, Marmara University, Istanbul, Turkey July 2009

Professional & Academic Works

- Plenary Speaker in New York State Association of MPOs 2025 Conference, Syracuse, NY.
- Guest Editor: Special Issue on Big Data in Transportation, Expert Systems, Wiley.
- Chair, Co-Chair for Conferences: Serviced in various conferences, most recent is Competition of Transportation Equity with TRB in TRB Innovations in Travel Analysis and Planning Conference, June 2023, Indianapolis, Indiana
- Reviewer for International Journals: IEEE ITS, TRE, TRR, Transport. B, COR, ANOR, IET Intelligent Transport Systems, etc.
- Published journal papers, peer-reviewed proceedings, presentations, and ongoing works in expertise areas
- Participated, managed, offered many various national, international projects