

Civil and Environmental Engineering

Present

Self-Driving Vehicles' Impacts on Americans' Long-Distance Travel Choices

Speaker:

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In this presentation, Dr. Fakharmoosavi will present the estimated models for long-distance domestic passenger trips before and after the introduction of autonomous vehicles (AVs) and their application to a 10% synthetic US population. As a part of a project for Texas Department of Transportation, the researchers synthesized 12.1M households and 28.1M individuals across 73,056 US census tracts. To generate disaggregated passenger trips, travel demand models, including trip frequency, season, purpose, party size, mode choice, and destination choice models, and vehicle ownership models were estimated. Different datasets, including a 2021 long-distance AV survey, 2016/17 National Household Travel Survey (NHTS) survey, EPA Smart Location data, FHWA rJourney dataset, and a 2017 AV fleet survey, were used for model estimation. Assuming a \$3500 technology cost premium (e.g., in year 2040), total person-miles traveled per capita in long-distance trips was estimated to rise 24% (from 251 to 309 miles per month). The person-miles traveled per capita of human-driven vehicles in long-distance trips was estimated to fall from 171 to 101 miles per month, rental cars from 46 to 28 miles, while AVs and shared autonomous vehicles capture 83 and 66 miles per capita per month, respectively.

Bio:

Dr. Fakharmoosavi is an Assistant Professor in the department of Civil and Environmental Engineering at the University of Connecticut (UConn). Prior to UConn, she was a postdoctoral fellow in the Center of Transportation Research (CTR) at the University of Texas at Austin. Dr. Fakharmoosavi received her Ph.D. and MSc degrees in Civil Engineering-Transportation Engineering from Michigan State University. Her research is primarily focused on investigating the impacts of autonomous electric vehicles on transportation networks and planning for the future of transportation systems. During her Ph.D., she investigated the impacts of emerging technologies and equitable demand mitigation strategies on mobility, emission, and travel time reliability. In addition, she was involved in different projects focusing on the electric vehicle charger placement problem across urban and rural roads.

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