Yifan Liu is a PhD candidate in Public Policy and an MS candidate in Computer Science at the Georgia Institute of Technology, USA. Her research delves into the realms of large-scale data analysis, field experimentation, and the application of statistical and computational methods in social sciences. Her work is centered on analyzing social and policy issues, with major applications to climate change, transportation, and electric mobility.

She is committed to promoting fairness and equity in low-carbon energy systems for diverse communities, particularly for those often overlooked by existing policies and incentives. As a visiting student researcher at Harvard Business School, she is exploring how governments and businesses can engage disadvantaged communities and ensure the inclusive adoption of clean energy technologies such as electric vehicle charging infrastructure. She is currently applying machine learning, natural language processing, and spatial techniques to extract valuable insights from extensive global datasets, including unstructured textual information. Her doctoral studies receive funding from the National Science Foundation, and she has earned multiple scholarships and fellowships, including recognition from the Future Leaders Climate Initiative at the Aspen Institute.

She holds a dual Bachelor's degree in European Studies and Economics from Beijing Foreign Studies University and a Master's degree in Public Administration from Cornell University.

Project at IAS-STS: Distributive Equity of the Electric Vehicle Charging Infrastructure in the United States

As a part of the Bipartisan Infrastructure Law (BIL), the U.S. federal government plans to allocate $7.5 billion to establish a nationwide electric vehicle (EV) charging network along the alternative fuel corridors. This policy aims to bolster electrification objectives and enhance climate resilience by expanding public infrastructure for zero-emissions vehicles. However, concerns have been raised by scholars and stakeholders regarding potential disparities in access to charging resources. Private
sector investments in charging station infrastructure have been unevenly distributed, primarily neglecting areas with substantial latent demand. The project intends to examine whether disadvantaged communities will enjoy equitable access to the benefits of EV charging, which can drive EV adoption through indirect network effects, a persistent obstacle to innovation. To achieve this, I merge the recently released EV Charging Justice40 Mapping Tool with historical consumer data to identify investment and disinvestment patterns in EV charging stations across all U.S. census tracts. I use machine learning, survival analysis, and expert interviews to investigate the underlying mechanisms influencing station investment and disinvestment. A triple difference estimator will be employed to evaluate the impact of BIL on the spatial distribution of EV charging infrastructure. Given

the federal mandate stipulating that 40% of benefits must target disadvantaged communities, the findings may suggest that, without further intervention, both public and private investments are unlikely to rectify persistent disparities in access to essential charging infrastructure.

Selected Publications

Liu, Y., Francis, A., Hollauer, C., Lawson, M. C., Shaikh, O., Cotsman, A., ... & Asensio, O. I. (2023). Reliability of electric vehicle charging infrastructure: A cross-lingual deep learning approach. Communications in Transportation Research, 3, 100095

Liu, Y., Hollauer, C., Lawson, M.C., Asensio, O.I. (2022). Citizen-generated intelligence for transport electrification policies. Data for Policy 2022

Liu, Y., Francis, A., Hollauer, C., Lawson, M. C., Shaikh, O., Cotsman, A., ... & Asensio, O. I. (2022). Machine learning and the reliability of EV charging infrastructure: policy evidence from East and Southeast Asia. APPAM Fall Research Conference 2022

Liu, Y., Lawson, M.C., Ha, S., Hollauer, C., Asensio, O.I. (2022). Do open or closed networks serve consumers better? Big data evidence from Tesla and Non-Tesla stations in the U.S. and Europe. APPAM Fall Research Conference 2021
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