



Prof. Kaidi Yang

National University of Singapore, Singapore

Prof. Kaidi Yang is an Assistant Professor in the Department of Civil and Environmental Engineering at National University of Singapore (NUS). Prior to this, he was a postdoctoral scholar in the Department of Aeronautics and Astronautics at Stanford University. He obtained a Ph.D. in Transportation from ETH Zurich in 2019. Prior to this, he received a BEng. in Automation, a BSc. in Pure and Applied Mathematics, and an MSc. in Control Science and Engineering from Tsinghua University. His research aims to devise efficient and trustworthy algorithms for future mobility systems, focusing on emerging vehicular technologies and shared mobility. He has been publishing on top academic journals such as IEEE Transactions on Intelligent Transportation Systems and Transportation Research. His research has been funded by reputable agencies such as Singapore Ministry of Education and Swiss National Science Foundation. He has received multiple awards, including the Best Paper Award in Omega and Best Student Paper in IEEE Intelligent Transportation Systems Conference.

Title: Privacy-Preserving Urban Traffic Management

Abstract: The era of big data has brought an enormous potential for improving transportation safety, mobility, and sustainability but has raised severe privacy risks. I will present several privacy-preserving mechanisms for traffic control and management. First, we focus on one traffic operator and develop differentially private traffic control algorithms in a connected vehicle environment. Second, we develop a privacy-preserving and verifiable mechanism to facilitate the data fusion between municipal authority (MA) and mobility providers such that MA can make decisions based on data provided by mobility providers (MP) without MPs having to disclose their true data.