Human-Centered Artificial Intelligence for Public Transportation Services

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Abstract: Public transportation services provide immense social and economic benefits to communities by enabling community members to access employment, education, and other opportunities. Due to the growing complexity of transportation, public transit agencies in the U.S. increasingly rely on automated tools that augment human decision-making with artificial intelligence (AI) for planning and operational decisions. However, existing AI tools are guided by purely technical objectives, such as maximizing ridership or minimizing vehicle miles traveled. Although logical, these objectives often lead to solutions that are counterintuitive, difficult to manage, and misaligned with the nuanced values of a community, which hinders the adoption of AI and negates its benefits. To address this translational gap, we propose to create the first human-centered AI for the planning and operation of transit services. A crucial element of our innovation is learning the preferences of community members and transit workers through engagement and machine learning, and incorporating these learned preferences into state-of-the-art AI tools. The proposed seed project will demonstrate, with limited scale and scope, that we can align AI for transportation with human preferences, which will serve as a foundation to develop competitive proposals for external funding.