

On Equitable and Sustainable Mobility Systems

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This talk discusses the challenges that mobility systems can face due to the presence of self-interested users and myopic societal objectives, and presents potential solutions arising from the adoption of accessibility fairness metrics and equitable tolling schemes based on artificial currencies. Specifically, I will first give an overview of our research activities on the operation of intermodal mobility systems, where users can complete a trip using different means of transportation, such as autonomous cars, public transit and active modes. Thereby, I will discuss potential inefficiencies resulting from users' selfish behavior, whilst also reflecting on current narratives and paradigms. Second, I will introduce incentive mechanisms to address these inefficiencies with an artificial currency that cannot be bought or traded, but only spent or received when traveling. Assuming the users to be rational, I will demonstrate how such schemes can achieve near-optimal routing whilst significantly reducing the users' perceived discomfort when compared to a centralized optimal allocation that does not consider user urgency.

References

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