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Titel des Beitrags/Title of the contribution: Explainable Ride-pooling Services

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Abstract:

Public transportation helps many people reach their destinations every day, being chosen by citizens for reasons such as less carbon emissions or budget constraints. It has, however, its limitations, not being able to bring people from or to all possible locations, making its users resort to other solutions such as ride pooling. Ride pooling is the concept of sharing vehicles to accommodate multiple people at a time, eliminating the need for them to drive in separate vehicles. Many mobility apps that make use of this concept are available, enabling users to request shared rides with other people who have similar destinations. These apps work with algorithms that try to optimise routes taking into consideration preferences such as how much time users are willing to spend waiting for vehicles, travel time, or arrival time. With so many factors involved, users often face the burden of picking up rides that best suit their personal travel goals. We propose an explainable AI solution that aims to soften this burden. Our solution is to integrate a conversational agent into existing ride-pooling apps, that is able to answer user questions by generating explanations about the rides offered by these apps. For example, users might want to know why their ride is scheduled in 15 minutes and not earlier, why their route is not the shortest one, or even why they cannot arrive at their destination within the next 30 minutes. Generating explanations to such questions is likely to increase user satisfaction and app usability. A strength of this proposed solution is that it does not assume that users have any understanding of the underlying technology, unlike some existing explainable routing solutions. To test our solution, we designed a web interface, where users can insert ride preferences and receive riding options, taking into account these preferences. Then, they can select questions concerning the produced options and a conversational agent answers their questions by returning explanations. The methodology used by the agent for this purpose combines survey methods from market research, based on which we elicited the preferences of over 1000 existing and potential ride-pooling users, and machine learning methods to learn from the survey data to predict the waiting time for rides, the travel time for rides, and the arrival time of rides.