

## **From mobility patterns to behavioural change: Leveraging travel behaviour and personality profiles to nudge for sustainable transportation**

Efthimios Bothos, Institute of computer and communication systems Athens, Greece

Evangelia Anagnostopoulou

Jasna Urbančič

Efthimios Bothos

Babis Magoutas

Luka Bradesko

Johann Schrammel

Gregoris Mentzas

Rendering transport behaviours more sustainable is a pressing issue of our times. In this paper, we rely on the deep penetration of mobile phones in order to influence citizens' behavior through data-driven mobility and persuasive profiles. Our proposed approach aims to nudge users on a personalized level in order to change their mobility behavior and make more sustainable choices. To achieve our goal, first we leverage pervasive mobile sensing to uncover users' mobility patterns and use of transportation modes. Second, we construct users' persuadability profiles by considering their personality and mobility behavior. With the use of the aforementioned information we generate personalized interventions that nudge users to adopt sustainable transportation habits. These interventions rely on persuasive technologies and are embedded in a route planning application for smartphones. A pilot study with 30 participants using the system for 6 weeks provided fairly positive evaluation results in terms of the acceptance of our approach and revealed instances of behavioural change.