

# ubigreen

## Using Mobile Phones as a Persuasive Technology to Affect Daily Transportation Practices

### Abstract

Mobile phones have the potential to be one of the most transformative technologies in human history, not just as a communication tool but as a *persuasive* medium to support changing attitudes and behaviors. Mobile phones are near-constant companions of their users. As such, the mobile phone can be seen as a sort of *digital extension* of a person, sensing and inferring their everyday activity and providing feedback at relevant periods. Soon, even low-end phones will have fast processors, long battery lives, and rich sensing capabilities such as GPS and accelerometers. In the UbiGreen project, we use mobile phones, sensors, and machine learning techniques to automatically recognize transportation behaviors such as walking, biking, and moving in a motor vehicle. The UbiGreen phone application displays iconic, yet provocative images based on sensed green transportation activities. These images reward users for green transportation behaviors, help increase awareness about their transportation patterns, and reveal how their transportation behaviors may affect the environment.



In our talk, we will discuss the potential of mobile phones as persuasive technologies, then describe the formative studies and design activities that were employed to develop UbiGreen. Next, we will present the results of a two-week, *in-situ* study (n=14) of the UbiGreen system. We will discuss results related to the visual design, social interaction, personal awareness, engagement, and overall use of the system. We will close by discussing the opportunities for applying persuasive, mobile technologies to help the environment and how these technologies may be integrated into the social web.

### Biography



Jon Froehlich is a doctoral student in the Computer Science and Engineering department at the University of Washington advised by James Landay. He is also a Microsoft Research Graduate Fellow. His research interests involve building and studying interactive technologies that address high value social issues such as computer accessibility, the environment, and healthcare. He has published work exploring the viability of applying automatic vehicle route prediction algorithms to optimize hybrid vehicle control systems, new touchscreen input techniques for motor impaired users, and how mobile phones can be used for longitudinal studies of human behavior. More recently, he spent four months in Spain investigating Barcelona's shared bicycling program--in particular, his research used data mining and machine learning techniques to uncover and predict shared

bicycling behaviors. At BECC, he will be presenting his work on UbiGreen, a mobile phone application that semi-automatically senses and reveals information about transportation behavior through personal ambient displays.

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