Introduction to the Wearables and Quantified Self Minitrack

Tayfun Keskin
U. of Washington Bothell
keskin@uw.edu

Deanna Kennedy
U. of Washington Bothell
deannak@uw.edu

Hugo Paredes
UTAD
hparedes@utad.pt

Information systems are getting closer to our bodies, and the boundary between the user and the machine is blurring. Wearable intelligence is the next chapter of the mobile revolution in emerging technologies. Wearables are not just a consumer phenomenon; they have the potential to change the way organizations conduct business. For example, data collected by wearable medical devices has the potential to disrupt many industries including healthcare and insurance. There is need for research to investigate this phenomenon.

The goal of this minitrack is to focus on the role of wearable technologies and the data collected through wearables. Areas of wearable computing research include user interface design, augmented reality, pattern recognition, and wireless and personal area network technologies.

The three papers accepted for the minitrack investigate these issues in different ways.

The first paper, titled “A Resource Complementarity View (RCV) of Value Creation in the Context of Connected Smart Devices on the Internet of Things” by Aaron Baird and Fred Riggins develops a theoretical model aligned with wearable technologies. Intense debate regarding how connected smart devices on the Internet of Things might create or destroy value are currently ongoing. Some view connected smart devices as beneficial to consumers (users), especially when they amplify the abilities of consumers. Others argue that labor substitution will increase business value in the short term, but will displace workers such that many consumers may not have the capital to participate in such markets. Authors work toward a resolution of such tensions by proposing a taxonomy of smart connected devices to understand where value creation is likely to occur. Authors then develop a theoretical model they call the Resource Complementarity View (RCV) of Value Creation which aims to explain complementarities between humans and smart devices in terms of the assignment of physical tasks and allocation of decision rights. How these assignments and allocations are made will determine the future complementarity relationships between humans and machines.

The second paper, titled “Crowdfunding Platforms for Financing New Ventures” investigates crowdfunding for wearable technologies. Authors explore electronic crowdfunding platforms as a means of receiving money and other resources by an entrepreneur from many parties for financing a project. The electronic platform determines the cost of funding for the entrepreneur and the return investors will receive per period. This research aims to develop a framework to understand and evaluate the quantitative and qualitative implications of various crowdfunding platforms for the entrepreneur and his investment decisions. They consider a debt financing based platform and examine its operational implications on the entrepreneur’s decisions. In addition, they identify the incentive problems that occur in these models. Their crowdfunding model is motivated by the wearable technologies industry.

In the last paper, titled “A Pricing Model for the Internet of Things Enabled Smart Service Systems” by Deanna Kennedy and Tayfun Keskin, authors investigate “how can firms price their products and services, as their ecosystems get smarter?” In order to answer this question, this paper provides a stylized model and its expansion to characterize industries that have become smarter and connected through the introduction of smart devices, a.k.a. the Internet of Things. First, authors propose a basic model for a duopolistic multi-sided market with externality effects. Next, they expand this model to a case that considers cross-market network externalities. Our results reveal that, even if Internet of Things technologies facilitate complex multi-sided markets, there is a strategic pricing solution for firm profits. Moreover, a strategic firm can benefit from aforementioned cross-market externalities in terms of higher market share and equilibrium prices.

This study not only contributes to the theories of pricing information goods, but also provides a guideline for practitioners who make pricing and other strategic decisions for the Internet of Things enabled goods and services.

We hope you enjoy the papers and their presentation at the conference. We thank the authors for submitting their work to make this another engaging minitrack. We also thank the reviewers for their valuable feedback.