Making the Web More Inclusive With Adaptive User Interfaces

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Abstract

I build user interface that adapt their structure, appearance and behavior to the goals, abilities, preferences and cultural norms of their users. Prior work in adaptive user interface community has demonstrated that adaptive and adaptable interfaces can improve users' performance and satisfaction. These findings alone should make adaptation a core component of the user interface design practice. But I argue that adaptive interactive systems are even more fundamentally important: they help overcome implicit biases built into most interfaces and they are a scalable approach for democratizing access to digital resources. To convince you of it, I will first present several examples of situations in which the typical one-size-fits-all user interfaces can be a source of unintended, but systematic discrimination causing some groups to be less likely than others to take advantage of a digital resource in the first place, or causing them to have a less efficient or substantially different experience compared to their peers. I will then present examples of several adaptive user interfaces that successfully provided more equitable experiences to broader populations compared to traditional non-adaptive designs. I will conclude by reflecting on the major challenges that stand in the way of broad adoption of adaptive techniques in practice. In particular, I will highlight the mismatch between the abstractions needed to develop effective adaptive user interfaces and the current software engineering practice.

Categories and Subject Descriptors

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Short Bio

Krzysztof Gajos is an associate professor of Computer Science at the Harvard School of Engineering and Applied Sciences. Krzysztof is broadly interested in interactive intelligent systems, a research area that bridges artificial intelligence, machine learning and human-computer interaction. Recent projects pursued by his group touched upon areas such as personalized adaptive user interfaces, computer accessibility, peer learning, creativity support tools, crowdsourcing, and tools and methods for engaging broader publics in research.

Prior to arriving at Harvard, Krzysztof was a postdoctoral researcher at Microsoft Research. He received his PhD from University of Washington and his M.Eng. and B.Sc. degrees from MIT. In the Fall of 2005, he was visiting faculty at the Ashesi University in Accra, Ghana, where he taught Introduction to Artificial Intelligence. Krzysztof is a coeditor-in-chief of the ACM Transactions on Interactive Intelligent Systems. He is a recipient of a Sloan Research Fellowship.