

User Adaptive Systems

Friday December 8, 2006

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<http://www.ece.mcgill.ca/~shie/UserAdaptiveSystems.html>

Systems that adapt to their users have the potential to tailor the system behavior to the specific needs and preferences of their users. The purpose of this workshop is to bring together researchers from academia and industry to summarize previous work; evaluate the need for user adaptive systems; and discuss the main difficulties that arise in designing and implementing such systems. The workshop will allow people working on different types of user adaptive systems to exchange ideas and to learn from each other's experience.

The interaction with human users is at the core of many important systems. Improving this interaction and adapting to the specific user needs and preferences may result in better computing on several levels. It can lead to more usable and friendlier interfaces; improved performance as perceived by the user; adequate prioritization of tasks; and many others advantages. The range of applications is vast: health care for the elderly, determining user satisfaction for PCs, adaptive power management of laptops, improving driving experience, and better personalization in online shops to name a few.

It is our belief that the relevance of machine learning as a field will be measured by its effect on modern technology. Adapting the behavior of a system to its user is a need that arises in a diverse range of applications. The workshop will focus on the methodology of user adaptive systems; it will explore the current state-of-the-art, and will offer a place for researchers from academia and industry to exchange ideas and formulate common goals.

User adaptive systems learn and monitor user activity. These systems take actions based on user activity, explicit feedback, and implicit feedback signals. The goal of the workshop is to summarize the state-of-the-art in user adaptive systems. At the end of this workshop we would like to:

1. Summarize previous work on topics such as user monitoring, activity inference and preference elicitation.
2. Evaluate the need for such systems.
3. Discuss the main difficulties such as learning user activity models, computing control policies using the user activity models, multi-constraint optimization, evaluating control policies, etc.

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Organizers: Shie Mannor & Georgios Theodorou

Morning session: 7:30am–10:30am

- 7:30am Opening Remarks
- 7:35am **Machine Learning in the User Interface: Experience in TaskTracer and CALO,**
Thomas Dietterich
- 8:15am **Sensing and Modeling Peoples Activities and Interactions in Everyday Environments,**
Tanzeem Choudhury
- 8:55am Break
- 9:05am **Implicit feedback from eye movements for proactive information retrieval,**
Samuel Kaski
- 9:45am **Panel discussion: User adaptive systems - which approach wins?**

Afternoon session: 3:30pm–6:30pm

- 3:30pm **On Streaming Machine Intelligence into Daily Life: Directions and Challenges,**
Eric Horvitz
- 4:10pm **Xbox Live: Challenges for a User Adaptive Online Gaming Service,**
Thore Graepel and Ralf Herbrich
- 4:30pm **Designing adaptive systems by maintaining a mixture over a set of experts,**
Manfred Warmuth
- 4:50pm **User Adaptive Image Ranking for Search Engines,**
Maryam Mahdavian and Nando de Freitas
- 5:10pm Break
- 5:25pm **Panel Discussion: Where are we going from here?**
- 5:55pm **Personalization of Hearing Aids through Bayesian Preference Elicitation,**
A. Birlutiu, A. Vakhrushev, T. Heskes, and B. de Vries
- 6:15pm **Modeling the Disruption to the User's Mental Model,**
Bowen Hui and Craig Boutilier
- 6:25pm Closing remarks