# Common Sense Knowledge and Goal-Oriented Interfaces

**Andrew S. Gordon**
University of Southern
California
Los Angeles, CA USA
gordon@ict.usc.edu

**Catherine Havasi**
Brandeis University
Waltham, MA USA
havasi@gmail.com

**Mathias Lux**
Klagenfurt University
Klagenfurt, Austria
mlux@itec.uni-klu.ac.at

**Markus Strohmaier**
Graz University of
Technology
Graz, Austria
markus.strohmaier@
tu-graz.at

## ABSTRACT
We present an overview of the workshop on Common Sense Knowledge and Goal-Oriented Interfaces held at the 2008 Intelligent User Interfaces conference. Six papers were accepted from diverse research groups, each offering innovative new research on interfaces that incorporate common sense knowledge and that are oriented around the goals of their users.

## Author Keywords
Common Sense Knowledge, Goal-Oriented Interfaces.

## ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## WORKSHOP OVERVIEW
When interacting with user interfaces, users have to bridge the gap between their goals expressed in mental terms and the interface's structures and functions expressed in physical terms. This gap has been characterized as the "Gulf of Execution", and it may imply significant cognitive processing on the users' side in order for them to successfully accomplish their goals. If user interfaces could understand, at a high-level, our goals, our problems, and our social procedures, users could have cognitively accessible, dynamic interfaces accommodating their unique needs, beyond the range of applications anticipated by the designers.

The 2008 IUI Workshop on Common Sense Knowledge and Goal-Oriented Interfaces (CSKGOI-08) provided a forum for innovative new research aimed at developing the next generation of knowledge-rich intelligent user interfaces. Six research papers were included in this workshop, each describing a unique approach to integrating

knowledge about users' goals and environment into diverse application interfaces.

Strohmaier, Prettenhofer, and Lux describe an analysis of degrees of intentional explicitness in AOL search queries, and argue that these degrees represent a continuous dimension that is orthogonal to existing query categories.

Anecleto, Neris, and Pinatti describe the PACO-T system, a computational tool that helps teachers to plan learning activities by presenting them with commonsense knowledge relevant to each step of pedagogical design.

Gutschmidt, Cap, and Nerdinger describe a study to determine if users' low-level interface actions can provide enough evidence to automatically distinguish between different web-browsing tasks.

Eslick describes a natural-language programming interface, ScratchTalk, which integrates semantic parsing and planning and is designed to support a model of social computation.

Yamamoto and Isahara describe experiments on query-expansion using taxonomically and thematically related terms, identified using an approach to extracting related word sets from large text corpora.

Katifori, Vassilakis, and Dix describe an approach to describing a user's task context through the use of spreading activation over domain ontologies.

The research described in these six papers are indicative of a growing trend toward knowledge-rich user interfaces, and demonstrate the relevance of large-scale integration of commonsense knowledge and goal information into diverse systems. As this research matures and the community grows, we anticipate a continued interest in the use and analysis of large-scale socially-constructed knowledge resources, combined with emerging technologies for the semantic interpretation of natural-language knowledge bases. Additionally, we expect that the sophistication of the inference mechanisms used in these interfaces will increase, opening new opportunities for collaboration with researchers that have pursued commonsense reasoning using formal methods.