设计计算学术报告
Seminar

Lectures:

1. Scaling up: From Collaborative Design to Crowdsourcing Design
2. Computational Approaches to Evaluating and Enhancing Creative Design

lecturer:

Dr. Mary Lou Maher
Professor and Chair
Department of Software and Information Systems,
College of Computing and Informatics
University of North Carolina Charlotte, USA

Time:

Oct. 23rd, 1.30pm
Scaling up: From Collaborative Design to Crowdsourcing Design
Oct. 24th, 1.30pm:
Computational Approaches to Evaluating and Enhancing Creative Design

Venue:

Precision Instrument Department Building, Meeting room 4304

Organizer:

Design Institute of Mechanical Engineering Department

Introduction:

Mary Lou Maher, Ph.D., most recently a Senior Research Scientist in the iSchool at the University of Maryland and Honorary Professor of Design Computing in the Design Lab at the University of Sydney, is the Chair of the Department of Software and Information Systems in the College of Computing and Informatics at University of North Carolina Charlotte. Mary Lou completed a BSc at Columbia University in 1979, and a MS and Ph.D. at Carnegie Mellon University, completing the Ph.D. in 1984. As the Professor of Design Computing at the University of Sydney she was co-Director of the Key Centre of Design Computing and she established a new degree program: the Bachelor of Design Computing. While at the National Science Foundation (NSF) from 2006-2010, she was Deputy Director of the Information and Intelligent Systems Division and a Program Director. At NSF, she established the CreativeIT program and helped manage the Human Centered Computing, Cyber-Enabled Discovery and Innovation, Design Science, and Social-Computational Systems Programs. While at the University of Maryland, she developed collaborative projects on crowdsourcing design for citizen science and introduced design thinking to graduate projects in information management.

Research Description: Mary Lou's research interests span a broad area of design and computing, specifically the study and development of novel interaction and communications technology, and models of design and creativity. Her research draws on and contributes to human-computer interaction, intelligent systems, computer-supported collaborative work, design science, and computational creativity. Her current research has a focus on developing social-computational models and new technology as we scale up from creativity enhancing human-computer interaction, through effective collaborative systems, to large-scale and highly motivating collective intelligence and crowdsourcing. Some highlights of her recent research are: developing models of motivation, innovation, and diversity in collective intelligence, designing tangible and immersive interaction environments and evaluating their impact on creative cognition; the design and study of virtual worlds for collaboration and education; and developing computational models of curiosity for extending the functionality of search and motivated reinforcement learning algorithms.

Lectures abstract:

1. Scaling up: From Collaborative Design to Crowdsourcing Design

Crowdsourcing design extends collaborative design by including the crowd: individuals that volunteer to participate without reference to their credentials or prescribing their role in the design. Effectively, this scales up the participation in the design process that introduces diversity and potentially incorrect contributions, and also leads to increased complexity in managing the design process. Crowdsourcing has been successfully applied in various areas of graphic design, software design, and product design. This paper draws on those experiences and research in diversity, creativity, and motivation to present a model for crowdsourcing the design of a socio-technical system for a citizen science community. This lecture shows how the model of crowdsourcing design has been implemented in NatureNet, a citizen science project for collecting bio-diversity data in nature parks. The data collected from this crowdsourcing platform will be used to learn an agent model of crowdsourcing that can then be integrated as a mixed initiative collective intelligence to improve the quality of the bio-diversity data collected and the creativity of the design ideas.

2.Computational Approaches to Evaluating and Enhancing Creative Design

With the increasing availability of large quantities of design data comes an opportunity to augment design practice with analytical models for recognizing creativity in new designs. In this lecture I derive three essential characteristics of a creative design: novelty, value and surprise. These characteristics form the basis of an analytical framework for computationally evaluating the creativity of a new design object. Each characteristic is associated with one or more computational processes that operate in a conceptual space of designs. The three characteristics are implemented as variations of conceptual clustering and predictive analytics. These processes are illustrated using a dataset of mobile devices. This analytical approach provides a computational model for both evaluating and enhancing creative design.

Sponsor:
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