

Seminar: Understanding Design, Designers and Creativity

1. Understanding Design: A Foundation for Design and Designing
2. Cognitive Studies of Designers: What Are Designers Doing When They are Designing
3. Understanding Creativity and Innovation: Computational Models of Creativity and Innovation

Lecturer: Dr. John Gero

Professor, UNC Charlotte, Krasnow Institute for Advanced Study and George Mason University



Time: Oct. 23rd, 3.00pm: Understanding Design: A Foundation for Design and Designing
Oct. 24th, 3.00pm: Cognitive Studies of Designers: What Are Designers Doing When They are Designing
Oct 25th, 9.30am: Understanding Creativity and Innovation: Computational Models of Creativity and Innovation

Venue: Precision Instrument Department Building, Meeting room 4304

Organizer: Design Institute of Mechanical Engineering Department

Introduction: Dr. John Gero is a Research Professor at UNC Charlotte, the Krasnow Institute for Advanced Study and in the Department of Computational Social Science and in the Volgenau School of Engineering, George Mason University. He is also an Adjunct Professor in the Creativity and Cognition Studios, University of Technology – Sydney. Formerly he was Professor of Design Science and Co-Director of the Key Centre of Design Computing and Cognition, at the University of Sydney. He is the author or editor of 50 books and over 600 papers and book chapters in the fields of design science, design computing, artificial intelligence, computer-aided design, and design cognition. He holds a number of software licenses. He has been a Visiting Professor of Mechanical Engineering, Architecture, Civil Engineering, Cognitive Science, Computer Science, and Design and Computation at MIT, UC-Berkeley, UCLA, Columbia and CMU in the USA, at Strathclyde and Loughborough in the UK, at INSA-Lyon and Provence in France and at EPFL-Lausanne in Switzerland.

He has been the recipient of many excellence awards including the Harkness Fellowship, two Fulbright Fellowships, two SRC Fellowships and various named chairs. He is on the editorial boards of numerous journals related to design science, computer-aided design, artificial intelligence and knowledge engineering and was the

chair of the international conference series Artificial Intelligence in Design. He is the chair of the conference series Design Computing and Cognition and the international conference series Computational and Cognitive Models of Creative Design.

Dr Gero's research is based on the notion that designing is itself a meta-discipline practiced in multiple disciplines such as engineering, architecture, industrial design and software design. Dr Gero's research in design as a metadiscipline started with the development of models informed by the formal languages of optimization, artificial intelligence and computational constructs. The validation and simulation of these models has been advanced by cognitive studies of designers across multiple disciplines and has led to an integrated approach of design computing and design cognition providing evidentiary support for the contention that designing is a meta-discipline.

More recently, with the advances in cognitive science and in neuroscience and the ability to collect data on brain activity while performing certain tasks, design research now has the opportunity to be more comprehensive in bringing together computation, cognition, and cognitive neuroscience. Research in this area will inform our understanding of design processes, design support, design interactions, design teams, and design education.

Current and recent research funding has come from the NSF (CMMI, CNS, EEC, IIS and SBE Programs), DARPA and NASA.

John Gero's major contributions include promulgating the scientific approach to studying designing, the development of the FBS ontology of design and designing, artificial intelligence in design, novel protocol methods to study design cognition, situated cognition as the basis of computational models of designing, and the introduction of designerly thinking into studies of innovation.

John Gero is an Honorary Fellow of the Design Society, a Life Fellow of the Royal Society for the Arts, a Fellow of the Association for the Advancement of Artificial Intelligence and a former Fellow of the Institution of Engineers, Australia, amongst others.

Sponsor: this seminar is related to the International Collaboration Innovation Team Project of Tsinghua University (清华大学重点学科高水平国际合作创新团队支持项目)
Contact: Hou Yuemin, Tel: 62773470
email: hym01@mails.tsinghua.edu.cn