

Studying the Minds, Bodies and Brains of Designers

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This talk will present recent advances in the study of design cognition (mind), design physiology (body) and the extension of those studies into the study of neurophysiological behavior of designers while designing – design neurocognition (brain).

- Input-output experiments and protocol analysis are used to study designers' minds. Examples of results of design cognition from studying design fixation, team behavior, focus of effort, and information flow are presented.
- Eye-tracking, heart rate, galvanic skin resistance and blood oxygen levels are used to study designers' bodies. Examples of results of design physiology from studying eye movement for different representation media are presented.
- Electroencephalogram (EEG) and functional near infra-red spectroscopy (fNIRS) are used to study designers' brains. Examples of results from studying the effects of designer's domain on brain behavior using EEG are presented. Examples of results from studying the effects of using different concept generation techniques using fNIRS are presented.

The talk concludes with a discussion of the implications for the future.

Bio:

John Gero is a Research Professor in Architecture and Computer Science at the University of North Carolina, Charlotte and at the Krasnow Institute for Advanced Study. He was previously Professor of Design Science and Director the Key Centre of Design Computing and Cognition, University of Sydney. He is the author/co-author of 54 books and over 700 published research papers and book chapters. He has been a visiting professor of architecture, artificial intelligence, civil engineering, cognitive science, computer science, design and computation, and mechanical engineering in France, Switzerland, UK and USA, including at MIT, CMU, Columbia, UC – Berkeley, UCLA, INSA-Lyon and University of Provence.

