

Where Industry and Academia Meet

Join us

EI09: USING COGNITIVE AND BEHAVIORAL SCIENCES AND THE ARTS IN ARTIFICIAL INTELLIGENCE RESEARCH AND DESIGN**Instructor:** Mónica López-González, La Petite Noiseuse Productions (US) | **Sunday January 28, 1:30 – 5:45 PM** | **Course Level:** Introductory/Intermediate | **Fee:** Member: \$275/ Non-member: \$300 / Student: \$95 (*prices for all increase by \$50 after January 8, 2018)

A major goal of machine learning and autonomous systems research is to create human-like intelligent machines. Despite the current surge of sophisticated computational systems available, from natural language processors and pattern recognizers to surveillance drones and self-driving cars, machines are not human-like, most fundamentally, in regards to our capacity to integrate past with incoming multi-sensory information to creatively adapt to the ever-changing environment. To create an accurate human-like machine entails thoroughly understanding human processes and behavior. The complexity of the mind/brain and its cognitive processes necessitates that multidisciplinary expertise and lines of research must be brought together and combined. This introductory to intermediate course presents a multidisciplinary perspective about method, data, and theory from the cognitive and behavioral sciences and the arts not yet used in artificial intelligence research and design. The goal of this course is to provide a theoretical framework from which to build highly efficient and integrated cognitive-behavioral-computational models to advance the field of artificial intelligence.

Benefits:

- Identify the major, yet pressing, failures of contemporary autonomous intelligent systems.
- Understand the challenges of implementation of and necessary mindset needed for integrative, multidisciplinary research.
- Review latest findings in the cognitive and behavioral sciences, particularly learning, attention, problem solving, decision-making, emotion perception, and spontaneous creative artistic thinking.
- Explain how relevant findings in the cognitive and behavioral sciences and the arts apply to the advancement of efficient and autonomous intelligent systems.
- Discuss various research solutions for improving current computational frameworks.

Intended Audience: Computer and imaging scientists, mathematicians, statisticians, engineers, program managers, system and software developers, and students in those fields interested in exploring the importance of using multidisciplinary concepts, questions, and methods within cognitive science, a fundamental and necessary field to build novel mathematical algorithms for computational systems.

Instructor: **Mónica López-González**, a polymath and disruptor, is a multilingual cognitive scientist, educator, entrepreneur, multidisciplinary artist, public speaker, science communicator, theorist, and writer. She merges questions, methods, data, and theory from both the sciences and the arts to better understand and unleash our creative thinking and making capacities as human beings. She's the co-founder and executive scientific and artistic director of La Petite Noiseuse Productions, a unique company at the forefront of innovative science-art integration. López-González holds BA in psychology and French, and MA and PhD in cognitive science, all from JHU and a Certificate of Art in photography from MICA. She held a postdoctoral fellowship in the JHU School of Medicine. She is a committee member and session co-chair of HVEI.

SYMPOSIUM PLENARY TALKS

Monday: Overview of Modern Machine Learning and Deep Neural Networks – Impact on Imaging and the Field of Computer Vision, **Greg Corrado, co-founder of Google Brain and Principal Scientist at Google**

Tuesday: Fast, Automated 3D Modeling of Buildings and Other GPS Denied Environments, **Avideh Zahkor, Qualcomm Chair & Professor at UC Berkeley**

Wednesday: Ubiquitous, Consumer AR Systems to Supplant Smartphones, **Ronald T. Azuma, Intel Labs Researcher and Augmented Reality Pioneer**

SYMPOSIUM HIGHLIGHTS

- 18 conferences featuring 30 keynote talks by world reknown experts
- 3D Theatre
- Tours of Stanford University Labs
- Industry Exhibition
- Meet the Future: Showcase of Student and Young Professional Research
- Demonstration Session
- Poster Session
- Welcome Reception
- Women in Electronic Imaging Breakfast
- Human Vision in Electronic Imaging 30th Year Banquet

To register or learn more, visit
www.ElectronicImaging.org

