

*Where Industry and Academia Meet*

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**EI13: DEEP LEARNING FOR IMAGE AND VIDEO PROCESSING**

**Instructors:** Jonathon Shlens and George Toderici, Google, Inc. (US) | **Monday January 29, 8:30 AM – 12:45 PM** | **Course Level:** Introductory/Intermediate | **Fee:** Member: \$275/ Non-member: \$300 / Student: \$95 (\*prices for all increase by \$50 after January 8, 2018)

Deep learning has profoundly changed the field of computer vision in the last few years. Many computer vision problems have been recast with techniques from deep learning and in turn achieved state of the art results and become industry standards. In this tutorial we will provide an overview about the central ideas of deep learning as applied to computer vision. In the course of this tutorial we will survey the many applications of deep learning to image and video problems. The goal of this tutorial is to teach the central and core ideas and provide a high level overview of how deep learning has influenced computer vision.

**Benefits:**

- Motivations for deep learning in computer vision.
- Recent progress in applying deep learning for vision.
- Architectures for image classification and image regression.
- Survey of image recognition and localization techniques.
- Tools for performing deep learning.
- Advances in image synthesis and image compression.
- Architectures for video classification and summarization.

**Intended Audience:** Anyone interested in the manipulation and analysis of images and videos – both science and applications. This includes students, color scientists, imaging researchers, medical imagers, software and hardware engineers, photographers, cinematographers, and production specialists.

**Instructors:** **Jonathon Shlens** received his PhD in computational neuroscience from UC San Diego (2007) where his research focused on applying machine learning towards understanding visual processing in real biological systems. He was previously a research fellow at the Howard Hughes Medical Institute, a research engineer at Pixar Animation Studios, and a Miller Fellow at UC Berkeley. He has been at Google Research since 2010 and is currently a research scientist focused on building scalable vision systems. During his time at Google, he has been a core contributor to deep learning systems including the recently open-sourced TensorFlow.

**George Toderici** received his PhD in computer science from the University of Houston (2007) where his research focused on 2D-to-3D face recognition, and joined Google in 2008. His current work at Google Research is focused on lossy multimedia compression using neural networks. His past projects include the design of neural-network architectures and various classical approaches for video classification, YouTube channel recommendations, and video enhancement.

**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 30<sup>th</sup> Year Banquet

To register or learn more, visit [www.ElectronicImaging.org](http://www.ElectronicImaging.org)

