IS&T International Symposium on

Electronic Imaging 2018
SCIENCE AND TECHNOLOGY

28 January – 2 February 2018
Hyatt San Francisco Airport, CA

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EI03: OPTIMIZING COMPUTER VISION AND NEURAL NETWORK APPLICATIONS USING OPENVX

Instructors: Radhakrishna Giduthuri, Advanced Micro Devices, and Kari Pulli, Meta (US) | **Sunday January 28**, 8:00 AM – 12:15 PM

Course Level: Introductory (OpenVX architecture and its relation to other related APIs) to intermediate (the practical programming aspects, requiring familiarity with C++). | **Fee:** Member: $275/ Non-member: $300 / Student: $95 (*prices for all increase by $50 after January 8, 2018)

OpenVX is an API for computer vision and neural network acceleration, especially important in real-time and safety-critical use cases. This course covers Khronos standards related to neural networks and computer vision. (Khronos Group is a not for profit, member-funded consortium to create royalty-free open standards for hardware acceleration.) A set of examples for neural networks and computer vision mapped to graph API are discussed. Also covered is the deployment model that pre-compiles a graph to create optimized binaries for deployment use cases, such as, inference neural networks. The course includes hands-on practice session that gets the partici-pants started on solving real computer vision and neural networks problems using Khronos standards.

Benefits: Understanding the architecture of Khronos standards for computer vision and neural networks; getting fluent in actually using OpenVX for real-time computer vision and neural network inference tasks.

Intended Audience: Engineers, researchers, and software developers who develop vision and neural network applications and want to benefit from transparent HW acceleration. Also, managers that want to get a general understanding of the structure and uses of Khronos standards.

Instructors: **Kari Pulli** is CTO at Meta. Before joining Meta, he worked as CTO of the Imaging and Camera Technologies Group at Intel influencing the architecture of future IPUs. He was VP of Computational Imaging at Light and before that he led research teams at NVIDIA Research (Senior Director) and at Nokia Research (Nokia Fellow) on computational photography, computer vision, and augmented reality. He has contributed to many Khronos and JCP mobile graphics and media standards, and wrote a book on mobile 3D graphics. He has taught and worked as a researcher at Stanford and MIT.

Radhakrishna Giduthuri is a software architect at Advanced Micro Devices (AMD) focusing on development of computer vision and neural network ac-celeration libraries for AMD GPUs. He is a member of Khronos OpenVX and NNEF working groups, and editor of OpenVX safety-critical specification. For several years, he was a member of SMPTE video compression standardizing committee. He is an active member of IEEE Signal Processing Society and winner of outstanding leadership and professional services award for IEEE.

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
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Information confirmed as of 12/06/17