

*Where Industry and Academia Meet*

Join us

**EI26: INTRODUCTION TO IMAGE QUALITY TESTING: TARGETS, SOFTWARE, AND STANDARDS****Instructors:** Peter Burns, Burns Digital Imaging, and Don Williams, Image Science Associates (US) | **Sunday January 28, 3:45 – 5:45 PM****Course Level:** Introductory/Intermediate | **Fee:** \$175 / Non-member: \$200 / Student: \$65 (\*prices for all increase by \$50 after January 8, 2018)

This course introduces imaging performance evaluation for image capture and provides a foundation for more advanced topics, e.g., system characterization and performance benchmarking. We adopt a scenario-based approach by describing several situations where imaging performance needs evaluation. Each of these, from design to quality assurance for manufacturing, is addressed in terms of suggested methods, color test charts, and standard reporting. For several important attributes, we describe international standards, guidelines, and current best practice. We demonstrate how testing standards can be adapted to evaluate capture devices ranging from cameras to scientific detectors. Examples are drawn from various applications, including consumer, museum, mobile, and clinical imaging.

**Benefits:**

- Understand the difference between imaging performance and image quality.
- Describe performance standards, guidelines, and current best practices.
- Understand how color-encoding, image resolution, distortion, and noise are evaluated.
- Compare various commercial analysis software products and (color, resolution) test charts.
- Select evaluation methods and test targets to meet your project needs.
- Identify sources of system variability and understand measurement error.

**Intended Audience:** Image scientists, quality engineers, and others evaluating digital camera and scanner performance. No background in imaging performance (optical distortion, color-error, MTF, etc.) evaluation will be assumed.

**Instructors:** **Peter Burns** is a consultant working in imaging system evaluation, modeling, and image processing. Previously he worked for Carestream Health, Xerox, and Eastman Kodak. A frequent instructor and speaker at technical conferences, he has contributed to several imaging standards. He has taught imaging courses at Kodak, SPIE, and IS&T technical conferences, and at the Center for Imaging Science, RIT.

**Don Williams**, founder of Image Science Associates, was with Kodak Research Laboratories. His work focuses on quantitative signal and noise performance metrics for digital capture imaging devices and imaging fidelity issues. He co-leads the TC 42 standardization efforts on digital print and film scanner resolution (ISO 16067-1, ISO 16067-2), scanner dynamic range (ISO 21550), and is the editor for the second edition to digital camera resolution (ISO 12233).

**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

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