

Where Industry and Academia Meet

Join us

EI24: CAMERA IMAGE QUALITY BENCHMARKING**Instructor:** Henrik Eliasson, Eclipse Optics (Sweden) | **Sunday January 28, 1:30 – 3:30 PM** | **Course Level:** Introductory/Intermediate**Fee:** Member: \$175 / Non-member: \$200 / Student: \$65 (*prices for all increase by \$50 after January 8, 2018)

The purpose of this short course is to show it is possible to compare the image quality of consumer imaging systems in a perceptually relevant manner. Because image quality is multi-faceted, generating a concise and relevant evaluative summary of photographic systems can be challenging. Indeed, benchmarking the image quality of still and video imaging systems requires that the assessor understands not only the capture device itself, but also the imaging applications for the system. This course explains how objective metrics and subjective methodologies are used to benchmark image quality of photographic still image and video capture devices. The course will review key image quality attributes and the flaws that degrade those attributes, including causes and consequences of the flaws on perceived quality. Content will touch on various subjective evaluation methodologies as well as objective measurement methodologies relying on existing standards from ISO, IEEE/CPIQ, ITU, and beyond. The course focus is on consumer imaging systems, so the emphasis will be on the value of using objective metrics which are perceptually correlated and generating benchmark data from the combination of objective and subjective metrics.

Benefits:

- Identify defects that degrade image quality in natural images and what component of the camera should/could be improved for better image quality.
- Be aware of existing image quality standards and metrics.
- Understand how to judge the overall image quality of a camera.
- Evaluate the impact various output use cases can have on overall image quality.
- Describe an image quality lab and measurement protocols.
- Understand how to compare the image quality of a set of cameras.

Intended Audience: Image scientists, engineers, or managers who wish to learn more about image quality and how to evaluate still and video cameras for various applications. A good understanding of imaging and how a camera works is assumed.

Instructor: **Henrik Eliasson** is an image analysis and image sensor specialist working at Eclipse Optics in Sweden. He has extensive experience in image quality assessment, previously working as a camera systems engineer at Sony Ericsson/Sony Mobile Communications and Axis Communications. He has been a key contributor in the CPIQ initiative, now run by IEEE, and a Swedish delegate to the ISO TC42 committee on photography standards. He has published work in a broad range of camera related areas, from optical simulations to camera color characterization and image sensor crosstalk investigations. Eliasson is a Senior member of SPIE.

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

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