

Session 34 Overview: *Emerging Imaging Solutions*

IMAGERS, MEDICAL, MEMS AND DISPLAYS SUBCOMMITTEE



Session Chair:
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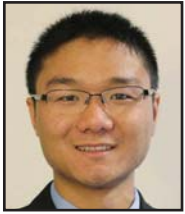
Session Co-Chair:
Johan Vanderhaegen
Google, Mountain View, CA



Session Moderator:
Matteo Perenzoni,
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Trento, Italy

New imaging solutions are needed for future diagnostics and assistive products. The first paper describes an ultrasound imager, followed by an imager and image processor for an augmented-reality contact lens, and a THz SoC for a light-field camera array. The final paper shows an ultrasound pulser that drastically reduces dynamic power loss caused by the parasitic capacitance of transducers.

8:30 AM

**34.1 An 8960-Element Ultrasound-on-Chip for Point-of-Care Ultrasound***Kailiang Chen, Butterfly Network, Guilford, CT*

In Paper 34.1, Butterfly Network presents an ultrasound-on-chip for point-of-care ultrasound imagers. The chip integrates 8960 capacitive micromachined ultrasound transducers (CMUTs), analog transceivers, and digital processors.

8:38 AM

**34.2 A 21pJ/frame/pixel Imager and 34pJ/frame/pixel Image Processor for a Low-Vision Augmented-Reality Smart Contact Lens***Rituraj Singh, Mojo Vision, Saratoga, CA*

In Paper 34.2, Mojo Vision describes an imager and an image processor for an augmented-reality smart contact lens that enhances wearer's vision using image overlays such as edge-detection and contrast enhancement.

8:46 AM

**34.3 A 32×32 Pixel 0.46-to-0.75THz Light-Field Camera SoC in 0.13μm CMOS***Ritesh Jain, University of Wuppertal, Wuppertal, Germany*

In Paper 34.3, the University of Wuppertal introduces a 32×32 pixel THz SoC in 0.13μm CMOS with a novel current-mode readout and broadband THz antenna design to support very large light-field camera arrays.

8:54 AM

**34.4 An Energy-Replenishing Ultrasound Pulser with 0.25CV²f Dynamic Power Consumption***Jaesuk Choi, KAIST, Daejeon, Korea*

In Paper 34.4, KAIST demonstrates an ultrasound pulser that reduces dynamic power (CV²f) by 73.1% for 820pF of transducer parasitic capacitance compared to the conventional class-D pulser, by replenishing the supplied energy from the magnetically stored energy in an inductor.