OSA INCUBATORS
Collaborate. Innovate. Discover.

OSA Incubator on Visual Perception in AR/VR
22 – 25 September 2020

Hosted by:
Rigmor C. Baraas, University of South-Eastern Norway
Francisco Imai, Chair-Elect of the OSA Color Technical Group
Ali Ozgur Yontem, University of Cambridge
Jon Y. Hardeberg, Norwegian University of Science and Technology

Tuesday, 22 September 2020

10:00 EDT   **Welcome & Program Overview**
        OSA & Hosts

10:15 EDT   **Keynote Talk: Are We Near The Optimal AR/VR Device?**
        Jukka Hakkinen, University of Helsinki

11:00 EDT   **Networking Coffee Break**

11:30 EDT   **15 Minute Break**

11:45 EDT   **Panel Discussion on Postulates: Defining the Ideal AR/VR Platform**
AR/VR/MR applications rely on the development of optics and photonic devices, and fundamental display technologies. Holography and light-field displays are two competing fundamental display technologies to achieve true 3D image representation, and the device architectures are being shaped according to their needs. Under this topic, we will aim to define "the wish list" for an ideal AR/VR/MR display and investigate what is fundamentally needed in terms of technology advancement to build such a display.

Panelists: Barry Silverstein, Facebook Reality Labs
Levent Onural, Bilkent University
Daniel Smalley, Brigham Young University
Ilmars Osmanis, LightSpace Technologies
Byoungho Lee, Seoul National University

Moderator: Ali Ozgur Yontem, University of Cambridge

12:30 EDT   **Moderated Discussion**

13:00 EDT   **Adjourn**

Wednesday, 23 September 2020

10:00 EDT   **Keynote Talk: Incorporating Visual System Modeling Into Display Technology**
David Brainard, University of Pennsylvania

10:45 EDT   **Networking Coffee Break**

11:15 EDT   **15 Minute Break**

11:30 EDT   **Panel Discussion on the Perception Element**
Under this topic, we will discuss if human visual perception is intrinsically limited, such that the display technologies do not need to deliver information above a certain quality, and hence, the design constraints could be relaxed. Or alternatively, is the sensitivity of human visual perception way beyond what we can develop for these technologies and therefore, further novel solutions needs to be developed?

Panelists: Jenny Bosten, University of Sussex
Michael Murdoch, Rochester Institute of Technology
Matteo Toscani, University of Giessen
Rafal Mantiuk, University of Cambridge
Kevin MacKenzie, Facebook Reality Labs

Moderator: Rigmor C. Baraas, University of South-Eastern Norway

12:15 EDT   **Moderated Discussion**

13:00 EDT   **Adjourn**

Thursday, 24 September 2020

10:00 EDT   **Keynote Talk: Accommodation in Humans and its Relevance to AR/VR Displays**
Marty Banks, University of California at Berkeley

10:45 EDT   **Networking Coffee Break**

11:15 EDT   **15 Minute Break**

11:30 EDT   **Panel Discussion on Limitations of State-of-the-Art**
Under this topic, we will aim to define what are the fundamental limitations of AR/VR advancement and debate what is needed to overcome to become mainstream?

Panelists: Kaan Aksit, University College London
Jannick Rolland, University of Rochester
Hakan Urey, Koc University
Laurie Wilcox, York University

Moderator: Francisco Imai, Chair-Elect of the OSA Color Technical Group

12:15 EDT   **Keynote Talk: The Future of AR/VR Displays: Accommodation, HDR, Pupil Steering, and Holography**

> Douglas Lanman, Facebook Reality Labs

13:00 EDT   **Moderated Discussion**

13:45 EDT   **Adjourn**

Friday, 25 September 2020

10:00 EDT   **Panel Discussion on Content Driven AR/VR Applications**
Under this topic, we will aim to discuss perception-critical applications of AR/VR/MR applications, including aspects relating to multi-sensory modalities, content creation, regulations, ethics and privacy.

       Panelists: Aldo Badano, U.S. Food and Drug Administration
                Peter Scarfe, University of Reading
                Aljosa Smolic, Trinity College Dublin
                Rosemarie Bernabe, University of South-Eastern Norway

       Moderator: Jon Y. Hardeberg, Norwegian University of Science and Technology

10:45 EDT   **Networking Coffee Break**

11:15 EDT   **15 Minute Break**

11:30 EDT   **Moderated Discussion & Consideration of Next Steps**

13:00 EDT   **Adjourn**