

## Abstract 124

### BEYOND AI - HUMAN-CENTERED COMPUTING IN OPHTHALMOLOGY

Oral

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#### **Purpose:**

To highlight advances in human-centered computing (HCC) in ophthalmology. The rapid acceleration of artificial intelligence (AI), deep learning (DL), and human-machine interfaces pose great potential as well as challenges for adoption into clinical practice. This presentation will highlight current and emerging translational research in ophthalmology and retinal disease.

#### **Methods:**

The current literature on artificial intelligence and deep learning will be reviewed with a focus on clinical implementation. Diabetic retinopathy, macular degeneration, and retinopathy of prematurity programs will be highlighted. A summary of the proceedings of the Future Vision Forum (Oct 31-Nov 1, 2022) which will highlight unmet needs, challenges, priorities, and future areas of investigation.

#### **Results:**

Despite the immense promise of multiple platforms using AI as a tool to screen, classify, and triage existing conditions, many concerns exist. Markers for validity and statistical significance have been called into question. Machine learning algorithms have the potential to move beyond screening programs to identify at-risk populations for disease progression and therapeutic intervention. Patient and physician confidence is a major barrier to adoption. Financial modeling of AI/ML programs is complex due to limited natural history data, variable costs, and evolving technology.

#### **Conclusions:**

HCC, AI, and ML are revolutionizing healthcare. Integration of this technology faces many challenges. Widespread adoption will depend upon robust financial modeling, healthcare systems that can benefit from cost savings, identification of accurate biomarkers for disease progression, and confidence from end-users in the validity of treatment outcomes.