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Probabilistic User Interface Design Strategies for Next-Generation Augmented Reality Applications

Head-mounted Augmented Reality devices enable the blending of digital content into the physical world such that the apparent distinction between what is real and what is virtual begins to blur. This emerging paradigm unlocks fundamentally new ways of performing work or delivering entertainment. However, building enjoyable and productive interfaces and interactions for Augmented Reality devices necessitates a step change from the design of conventional experiences delivered on a computer, tablet or smartphone. This presentation will introduce the concept of probabilistic user interface design and demonstrate its potential in supporting the development of next-generation Augmented Reality applications. Two illustrative studies will be presented tackling the critical computing task of entering and displaying textual content in Augmented Reality.

John Dudley is a Research Associate in the Engineering Design Centre at the University of Cambridge and a Postdoctoral Associate of Jesus College, Cambridge. He is a member of the Intelligent Interactive Systems Group led by Professor Per Ola Kristensson, which explores the human-computer interaction design challenges around building both complex and everyday interactive systems. John completed his PhD in early 2020 on the topic of probabilistic user interface design for virtual and augmented reality applications. His research focuses on applying probabilistic methods to improve interfaces and interactions by dynamically incorporating user preferences and task performance indicators..