

# NOVEL AUGMENTED AND VIRTUAL REALITY APPLICATIONS FOR AVIATION:

Lessons from the ACE Lab

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Augmented and virtual reality have vast applications, beyond those found in the gaming industry. The Advanced Cognitive Engineering (ACE) Flight Cognition Lab at Carleton University has combined flight simulation technology with new head-mounted virtual reality devices to develop novel experiments. This talk will present findings from the ACE Lab that highlight critical aspects of cognition for aviation and how this cognition may be impacted by augmented and virtual reality technologies in the flight deck. I will also discuss how attention to the needs of industry partners and end-users has influenced our ongoing work in augmented and virtual reality, such as the development of a cognitive health screening tool for pilots using the Oculus Rift TM, and use of the Microsoft HoloLens TM for airborne surveillance operations.

**Kathleen Van Benthem** is a postdoctoral fellow at the Advanced Cognitive Engineering Lab (2015-2017) and teaches at the Institute of Cognitive Science at Carleton University. Dr. Van Benthem's primary work uses immersive flight simulation environments to isolate key cognitive and system determinants of pilot performance in situation awareness, basic aircraft control, and prospective memory. In collaboration with the National Research Council, Dr. Van Benthem also contributes to research on electroencephalographic (EEG) signatures of cognitive vigilance using dense array and sparse wireless EEG systems. Her present work is partially supported by AGE-WELL, a federally funded Networks of Centres of Excellence program. Dr. Van Benthem has been an Occupational Therapist, Education Consultant, and the Director of Policy and Standards for the Canadian Association of Occupational Therapists.

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Macodrum Library

Room 482

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All welcome.  
No need to RSVP.



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