Who do you look like? Gaze-based authentication for workers in VR
Karina LaRubbio¹, Jeremiah Wright², Brendan David-John¹, Dr. Andreas Enqvist³, Dr. Eakta Jain¹

¹ Department of Computer & Information Science & Engineering, University of Florida, Gainesville, FL
² Department of Materials Science and Engineering, University of Florida, Gainesville, FL

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Overview
• Gaze cues offer the promise of seamless and continuous authentication.
• Gaze behavior varies based on task.
• We compared authentication performance using gaze data from three tasks.
• Within-task authentication performed best for image viewing.

Problem
Gaze-based authentication

Methodology
• Pico Neo 2 Eye Headset. (90 Hz integrated eye tracking)
• Ten Nuclear Engineering undergraduate students.
• Fixation and saccade features extracted for authentication with an RBFN model [1,2,3].

Study Flow
Initial Eye Tracking Calibration
Random Dot Viewing
Image Viewing
Break & Calibration
Nuclear Training Simulation
Debrief & Survey

Results
Identification Rate

Conclusions
• Evaluated within-task and between-task authentication using eye movements in a VR environment.
• Within-task authentication performed best.
• The highest within-task identification rates were for the image viewing task (72%/82%).
• The highest between-task identification rates were between image viewing and simulation tasks (25%/38%).
• Tasks with larger volume of data positively impacted authentication performance.

Future Work
• Standardize volume of data across tasks.
• Use expanded feature sets from eye movements.
• Explore feature distributions by task.

References