Multimodal Representations and their Relevance for Aging

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255 Townshend Hall
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In many data-rich, highly demanding environments, such as driving and aviation, operators are gradually faced with numerous signals and notifications, mainly in visual form. Multimodal displays, i.e., which present information in vision, hearing, and touch in parallel, have been introduced as a means of reducing visual data overload. However, the ability to process three or more unrelated signals in separate modalities is not well understood, while the need to do so may be essential. The goals of this research are to assess performance effects of processing concurrent signals in different modalities and to develop display countermeasures to overcome them. This work focuses on adults 65+ years as they are the fastest growing age-group, are known to suffer from sensory deficiencies, and experience difficulties with divided attention. The application domain for this research is driving. Through informed display design, this work will contribute to increased safety in a wide range of complex domains.

Brandon Pitts is a Ph.D. Candidate in the Department of Industrial and Operations Engineering at the University of Michigan (UM) – Ann Arbor. His research focuses on better understanding how vision, hearing, and touch can be used to support operators in data-rich, safety-critical environments such as driving, aviation, and medicine. In particular, his work examines age-related perceptual challenges and their implications for multimodal display design. Brandon received a B.S. in Industrial Engineering from Louisiana State University (LSU) in 2010 and an M.S.E in Industrial and Operations Engineering from UM in 2013. He is the recipient of a 2011 National Science Foundation Graduate Research Fellowship (NSF GRF) and a registered Engineer Intern (E.I.T) with the state of Louisiana. He is also member of the Human Factors and Ergonomics Society (HFES) and the Institute of Industrial Engineers (IIE).