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*Towards the development of adaptive and adaptable multimodal  
displays*

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**Abstract:** Abstract: Data-rich environments, such as aviation, military operations, and medicine, impose considerable and continually increasing attentional demands on operators by requiring them to divide their mental resources effectively amongst numerous tasks and sources of information. Data overload, especially in the visual channel, and associated breakdowns in monitoring represent a major challenge in these environments. One promising means of overcoming data overload is through the introduction of multimodal displays, i.e., displays which distribute information across various sensory channels (including vision, audition, and touch). However, several questions remain unanswered regarding the design and limitations of this approach. In this talk, I will summarize two ongoing research efforts that seek to answer the following: (1) how movement affects sensory perception and performance in the real world and virtual reality and (2) how workload transitions affect performance and visual attention allocation. In combination, the results from these two ongoing research efforts will help inform design guidelines for adaptive and/or adaptable multimodal displays that can adjust the nature of information presentation in response to the user in a context-sensitive fashion.

**Bio:** Sara Riggs is an associate Professor and Assistant Chair of Research and Development in the Department of Engineering Systems and Environment at the University of Virginia. She received her PhD and MSE in Industrial and Operations Engineering from the University of Michigan. Her research focuses on task sharing, attention management, and interruption management in complex environments that have included aviation, healthcare, and military operations. She has ongoing research in the areas of: (a) multimodal display design, (b) cognitive processing limitations, and (c) adaptive/adaptable display design. Her research been funded by the NSF, AHRQ, NIH, and AFOSR. She is the recipient of the NSF CAREER Award, 2019 Jerome H. Ely Human Factors Article Award, and 2016 APA Briggs Dissertation Award.

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