abstract
Studying human attention is key to improving system performance. Because humans have limited cognitive resources for processing information, they are often unable to cope with multiple resource demands in critical environments, such as intensive care units and military command centers. In these challenging and chaotic environments, exceeding resource limitations results in high-impact failures. Systems in use within these environments often fail to help users focus attention where resources are needed. Thus, a key piece missing from attempts to build supportive and automated systems has been the ability to predict how users will allocate attention in these complex domains. Using a blend of engineering concepts and psychological principles of attention, I will discuss the utility of the STOM model of attention for predicting how humans allocate resources in complex environments. The model can predict task selection in challenging multi-task environments and has several emerging applications within engineering.

biosketch
Since receiving his PhD from Colorado State University under Ben Clegg and Christopher Wickens in 2014, Dr. Gutzwiller has accumulated extensive research experience in human systems engineering while working for the United States Navy. His research focuses on human attention and human-automation interaction, and their value in the design of complex systems. Dr. Gutzwiller has been funded by the Army Research Office, Assistant Secretary of Defense, DARPA, NASA, and the Office of Naval Research, among others. He is the author of over 30 peer-reviewed papers, and recently received the Human Factors Society’s Jerome H. Ely award for the most outstanding journal article in 2016. Dr. Gutzwiller has been recognized for exceptional leadership and mentoring across several multi-disciplinary engineering projects in cyberspace and ship defense systems, receiving an award from the US Navy in 2017. Dr. Gutzwiller’s current research focuses on human-automation interaction, modeling attention, and situation awareness in defensive cyberspace operations.