PROJECT DESCRIPTION: As missions become more distributed and ad hoc, research identifying what psychological constructs facilitate (or are responsible for) efficient team performance becomes crucial. Recently, we have extended models of efficiency (i.e., Fox & Houpt, 2021) to estimate team performance dynamically. This poses the opportunity to communicate live feedback to a team or supervisor and offers an adaptive approach to choosing what, how much, and when to provide teammates additional information about one another that may facilitate or inhibit monitoring behaviors. Importantly, the nature of one’s task demands ought to be considered when assessing trust. Additionally, how, and the extent to which, teammates monitor one another is going to depend on a) the spare attentional resources they have available while attempting to simultaneously perform their own task duties and b) the degree to which teammates trust one another to adequately perform their assigned duties. We will devise and test displays that leverage multiple modalities to dynamically communicate partner and team efficiency in a way that demands the fewest competing attentional resources. We will quantify the benefit of each multimodal display in assisting teammates to monitor one another by more appropriately calibrating their level of trust, hence maximizing team efficiency, over time. Implications of this research concern transparent displays, which facilitate team efficiency and calibrated trust, ultimately affording effective communication in ad hoc teaming scenarios comprising a dearth of social interaction. The intern selected for this opportunity will assist with identifying candidate interface designs to provide live feedback and ultimately facilitate calibrated reliance and increased team efficiency, a critical step with real-world application to this program of study. The intern will be a key team member involved in: reviewing the literature, developing the protocol for the experiment, collecting and analyzing data, and academic writing.

ACADEMIC LEVEL: Masters, PhD

DISCIPLINE NEEDED:
- Human Factors
- Experimental Psychology
- Human-machine Teaming

RESEARCH LOCATION: Wright-Patterson AFB Dayton, OH

RESEARCH ADVISERS: Elizabeth Fox, PhD; August Capiola, PhD
Human Factors and Industrial/Organizational Psychology, Wright State University, 2019; Human Factors and Industrial/Organizational Psychology, Wright State University, 2018
Elizabeth Fox is a Research Psychologist in the Sensory Systems Branch within the 711th Human Performance Wing at Wright-Patterson Air Force Base, Ohio. She earned her PhD in Human Factors and Industrial/Organizational Psychology at Wright State University in 2019, where she studied the neurobehavioral effects of multitasking. Her current research involves the development of neural and mathematical models that may be used to investigate individual and team factors that influence performance in complex, multimodal environments. *Photo courtesy the U.S. Air Force Research Laboratory.*

August Capiola is a Research Psychologist in the Collaborative Interfaces and Teaming Branch within the 711th Human Performance Wing at Wright-Patterson Air Force Base, Ohio. He earned his PhD in Human Factors and Industrial/Organizational Psychology at Wright State University in 2018, where he studied persuasion and trust. His current research interests include swift trust in ad hoc teams and trust toward automation and robotic referents of varying complexity. *Photo courtesy the U.S. Air Force Research Laboratory.*