

REPPERGER RESEARCH INTERN PROGRAM

RESEARCH PROJECT #: AFRL-RHW-21-02

INDIVIDUALIZING COGNITIVE MODELS

PROJECT DESCRIPTION: As technology continues to advance, airmen are working in increasingly difficult operational environments across the Air Force that result in factors that affect their health and performance. These factors can include vigilance decrements from time on task, fatigue from loss of sleep and circadian disruption throughout missions, and increases in workload from multitasking within the environment. Assessment and prediction of these factors is critical to be able to manage and mitigate associated risks. Mathematical and computational modeling has shown promise in assessing and predicting these factors. However, these models have historically ignored the effects of individual differences, commonly producing assessments and predictions for an 'average' operator that might not reflect reality. Incorporating individual differences can increase the effectiveness of these models, leading to more individualized assessments and predictions for individual airmen. The student will be involved in a project incorporating individual differences into models of vigilance, fatigue, or workload. Project tasks may include learning and coding computational cognitive models, developing literature reviews, hypothesis formation, experiment/study design, data collection, model development, data analysis, and manuscript preparation.

ACADEMIC LEVEL: Bachelors, Masters, PhD

DISCIPLINE NEEDED:

- Social and Behavioral Sciences
 - Cognitive Science
 - Experimental Psychology
 - Industrial or Organizational Psychology
 - Psychology (General)

RESEARCH LOCATION: Wright-Patterson AFB Dayton, OH

RESEARCH ADVISER: Megan Morris, PhD

Human Factors & Industrial/Organizational Psychology, Wright State University, 2014

Dr. Megan Morris is a Research Psychologist in the Air Force Research Laboratory, Cognitive Models Branch. Within the branch, she is a member of the Multiscale Modeling Team and her work focuses on research regarding fatigue, vigilance, and workload assessment and modeling.