

REPPERGER RESEARCH INTERN PROGRAM

RESEARCH PROJECT #: AFRL-RHD-21-04

ASSESSING VISUAL PERFORMANCE WITH AND WITHOUT EYE PROTECTION

PROJECT DESCRIPTION: This project concerns applied research to evaluate and assess performance of flight relevant tasks under optical glare (laser and broadband) with and without protective filters. This program leverages vision science research to establish requirements, define metrics, and support development and transition of protective technologies for laser threats and nuclear flash blindness. Experiments focus on the effect of glare and protective filters, separately and in combination, on visual performance using flight relevant tasks and measures of eye tracking behavior. The goal is to develop objective performance-based metrics for predicting the acceptability of protective technologies. Additionally this research will validate models of flash blindness recovery, the visual effects of laser eye protection, and the effects of filters on performance.

ACADEMIC LEVEL: Bachelors, Masters, PhD

DISCIPLINE NEEDED:

- Engineering
 - Computer and Systems Engineering
 - Electrical and Electronic Engineering
- Social and Behavioral Sciences
 - Cognitive Science
 - Experimental Psychology
 - Psychology (General)

RESEARCH LOCATION: JBSA, Fort Sam Houston, San Antonio, TX

RESEARCH ADVISER: Barry Goettl, PhD
Engineering Psychology, University of Illinois at Urbana-Champaign

Dr. Barry Goettl is a Senior Research Psychologist for the Air Force Research Laboratory at Joint Base San Antonio – Fort San Houston. He is currently project manager for the Nuclear Flash Blindness Protection (NFBP) program in the Optical Radiation Bioeffects Branch, conducting research on visual performance as well as cockpit ground and flight evaluations of optical filters. Previously he conducted and published research in the areas of skill acquisition and computer-based training. In addition, he developed and transitioned a Visual Threat Recognition and Avoidance Trainer, and served as liaison to the Air Force Information Operations Center. Dr. Goettl received a B.S. in psychology from the University of Dayton, and Master's and Ph.D. degrees in engineering psychology from the University of Illinois at Urbana-Champaign. He is a Fellow of the Human Factors and Ergonomics Society, an Associate Editor of Human Factors, and was recently elected to the HFES Executive Council.