

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

NANCY GRUGLE, PH.D.
Human Factors Expert

HUMAN FACTORS and ERGONOMICS EXPERIENCE

Distracted and Drowsy Driving, Work Zone Safety, Sleep Deprivation and Shift Work, Product and Equipment Design/Development, Warning and Instruction Design, User-Centered Design, ADA Accessibility Compliance

PROFESSIONAL EXPERIENCE

2013 to present **Robson Forensic, Inc.**
Associate

- Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving human factors/ergonomics, product and equipment user interface design, driver performance and work zone safety, sleep deprivation, fatigue, and shift work, premises safety, and warning and instructional material design.

2007 to 2013 **Lockheed Martin**, Colorado Springs, CO
Staff Human Factors Engineer

- Developed and evaluated missile defense user interfaces; designed usability experiments, evaluated results, and wrote reports for user conferences
- Performed HFE lead activities for a warfighter communication network program including conducting ergonomic assessments and human factors evaluations of equipment
- Evaluated human factors aspects of critical safety and operations incident at military installations as part of an Incident Response Team
- Generated GUI mockups and evaluated usability for commercial and industrial energy management software
- Assessed level of ADA compliance for military installation and reported recommendations for improvements
- Developed and implemented human factors engineering training sessions for software developers and systems engineers

2005 to 2007 **Cleveland State University**, Cleveland, OH
Assistant Professor, Industrial and Systems Engineering

- Directed Driving Simulator Laboratory operations and supervised three graduate research assistants
- Designed experiments for work zone safety research projects, wrote IRB applications, analyzed large data samples and published results
- Managed grant budgets for research project expenditures and graduate student tuition/stipends
- Wrote quarterly and final reports to funding agencies

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- Taught experimental design and human factors engineering graduate courses
- Taught engineering probability/statistics, work design, and human factors engineering undergraduate courses

2003 to 2005 **Walter Reed Army Institute of Research**, Silver Spring, MD
Co-Principal Investigator/Study Manager

- Conducted a 3-month experiment using WOMBAT, an air traffic control aptitude simulator, to evaluate the effects of sleep deprivation on situation awareness and executive cognitive function
- Prepared weekly study runs to include the following: configuring equipment, preparing testing materials, and downloading data
- Oversaw volunteer screening processes as well as scheduling and payment of volunteers
- Trained and assessed student staff performance on cognitive test administration

2001 to 2002 **Lockheed Martin Systems Integration**, Owego, NY
Human Factors Engineer

- Evaluated situation awareness and workload issues associated with controlling UAV's from attack helicopter platforms
- Developed a graphical user interface for UAV route-planning and decision-aiding software
- Designed a cockpit evaluation experiment for a U.S. Navy helicopter program
- Performed MIL-STD-1472F compliance review and maintainability analysis for the U.S. Air Force aircraft

2000 **Army Research Laboratory**, Aberdeen Proving Ground, MD
Research Engineer

- Performed preliminary usability evaluation of Marine Corps amphibious assault vehicle
- Modeled human performance using IMPRINT software
- Conducted research on team performance measurement methodologies

LEADERSHIP EXPERIENCE

Cleveland State University, Cleveland, OH
Faculty Advisor, Institute of Industrial Engineers

- Coordinated Ford Ergonomics Manager speaker for Engineers' Week
- Assisted students in planning Institute of Industrial Engineers activities and fundraisers
- Oversaw budget preparation, submission, and expenditures

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Presidential Appointee, Patent Committee

- Evaluated merit of patent protection applications at Cleveland State University
- Made recommendations for provisional protection of patent applications

Member, University Transportation Center Research Selection Committee

- Assisted in the development of research selection policies and procedures for the University Transportation Center
- Presented research in progress at University Transportation Center Advisory Board meeting
- Assisted in soliciting funds for research to be conducted under the University Transportation Center

EDUCATION

Ph.D., Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, 2005

M.S., Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, 2001

B.S., Industrial and Systems Engineering, Ohio University, 1999

PUBLICATIONS and PRESENTATIONS

Grugle N.L., Kleiner, B.M. (2007). Effects of chemical protective equipment on team process performance in small unit rescue operations. *Applied Ergonomics*, 38(5), 591-600.

Grugle, N.L. (2006). "Using Driving Simulators for Highway Safety Research." Presentation given at the Ohio Transportation Engineering Conference, Columbus, OH.

Grugle, N.L. (2005). Understanding the Effects of Sleep Deprivation on Executive Function, Complex Task Performance and Situation Awareness. Doctoral Dissertation.

Grugle, N.L., Kleiner, B.M., Wesensten, N.J. and Balkin, T.J. (2004). Refining the Walter Reed Sleep Management System: An Exemplar for Systems Improvement Using a Macroergonomic Approach. Proceedings of the Human Factors and Ergonomics Society 48th Annual Meeting, New Orleans, LA, 1620-24.

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- Grugle, N.L. (2001). An Investigation into the Effects of Chemical Protective Equipment on Team Process Performance during Small Unit Rescue Operations. Masters Thesis.
- Killgore, W.D., Grugle, N.L., Balkin, T.J. (2012). Gambling when sleep deprived: don't bet on stimulants. *Chronobiology International*, 29(1), 43-54.
- Killgore, W.D., Grugle, N.L., Killgore, D.B., Balkin, T.J. (2010). Sex differences in self-reported risk-taking propensity on the Evaluation of Risks scale. *Psychological Reports*, 106(3), 693-700.
- Killgore, W.D., Killgore, D.B., Grugle, N.L., Balkin, T.J. (2010). Odor identification ability predicts executive function deficits following sleep deprivation. *International Journal of Neuroscience*, 120(5), 328-34.
- Killgore, W.D., Grugle, N.L., Reichardt, R.M., Killgore, D.B., Balkin, T.J. (2009). Executive functions and the ability to sustain vigilance during sleep loss. *Aviation Space and Environmental Medicine*, 80(2), 81-7.
- Killgore, W.D., Kahn-Greene, E.T., Grugle, N.L., Killgore, D.B., Balkin, T.J. (2009). Sustaining executive functions during sleep deprivation: A comparison of caffeine, dextroamphetamine, and modafinil. *Sleep*, 32(2), 205-16.
- Killgore, W.D., Lipizzi, E.L., Grugle, N.L., Killgore, D.B., Balkin, T.J. (2009). Handedness correlates with actigraphically measured sleep in a controlled environment. *Perceptual Motor Skills*, 109(2), 395-400.
- Killgore, W.D., Grugle, N.L., Killgore, D.B., Leavitt, B.P., Watlington, G.I., McNair, S., Balkin, T.J. (2008). Restoration of risk-propensity during sleep deprivation: caffeine, dextroamphetamine, and modafinil. *Aviation Space and Environmental Medicine*, 79(9), 867-74.
- Killgore, W.D., Muckle, A.E., Grugle, N.L., Killgore, D.B., Balkin, T.J. (2008). Sex differences in cognitive estimation during sleep deprivation: effects of stimulant countermeasures. *International Journal of Neuroscience*, 118(11), 1547-57.
- Killgore, W.D., Rupp, T.L., Grugle, N.L., Reichardt, R.M., Lipizzi, E.L., Balkin, T.J. (2008). Effects of dextroamphetamine, caffeine and modafinil on psychomotor vigilance test performance after 44 h of continuous wakefulness. *Journal of Sleep Research*, 17(3), 309-21.

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Huck, N.O., McBride, S.A., Kendall, A.P., Grugle, N.L., Killgore, W.D. (2008). The effects of modafinil, caffeine, and dextroamphetamine on judgments of simple versus complex emotional expressions following sleep deprivation. *International Journal of Neuroscience*, 118(4), 487-502.

PANEL PARTICIPATION

Educational Session Panel. "This isn't NASCAR: Driving through orange barrels in Ohio."
Ohio Safety Congress & Exposition. March 2007.

Work Zone Safety Panel. Ohio Contractors Association Winter Conference. December 2006.

EXPERT NOT RETAINED