

NATHAN L. TENHUNDFELD, Ph.D.

Assistant Professor
University of Alabama in Huntsville
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Professional Experience

Assistant Professor (2019 – Present)

Department of Psychology
University of Alabama in Huntsville
Huntsville, AL

Human-Machine Teaming Lead – Postdoctoral Position (2017 – 2019)

Warfighter Effectiveness Research Center
United States Air Force Academy
Colorado Springs, CO

Associate Investigator - Contactor (2016 - 2017)

Warfighter Effectiveness Research Center
United States Air Force Academy
Colorado Springs, CO

Education

Colorado State University, Ph.D. (2017)

Fort Collins, CO
Cognitive Psychology
Advisor: Jessica Witt

Colorado State University, M.S. (2015)

Fort Collins, CO
Cognitive Psychology
Advisor: Jessica Witt

University of Virginia, B.A. (2012)

Charlottesville, VA
Major: Psychology

Research Grants

Pilot Vehicle Interface and Decision Support Application for Optimum Engagement of Manned/Unmanned Systems in a Dynamic, High Threat Environment.

(Tenhundfeld, PI; Tossell, Co-PI) Funding by *Lockheed Martin* (July 2018 – July 2019). Total amount awarded: \$39,500

Awards

Raja Parasuraman Award for Scientific Impact – 2nd International Neuroergonomics Conference (2018)

Student Travel Award – American Psychological Association’s Division 19 (2015)

Invited Talks

Tenhundfeld, N.L., de Visser, E.J., Finomore, V.S., & Tossell, C.C. (2019). *Autonomy in Operational Environments*. Talk presented at the Applied Human Factors and Ergonomics Workshop in Human-Machine Teaming, Washington, DC.

Tenhundfeld, N.L. (2019). *Human and Machine: Human Factors in HMT at the US Air Force Academy*. Talk presented at annual Lockheed Martin Autonomy Executive Steering Committee Meeting. Denver, CO.

Tenhundfeld, N.L. & Tossell, C.C. (2018). *Trusting, using, and understanding robotic and AI systems in war*. Talk presented at the Robotics Science and Systems Workshop in Adversarial Robotics, Carnegie Mellon University, Pittsburgh, PA.

Tenhundfeld, N.L. (2016). *Perception is action-specific*. Center for Research on Training, University of Colorado, Boulder, CO.

Publications/Conference Proceedings (* denotes undergraduate)

Tenhundfeld, N.L., de Visser, E.J., Haring, K.S., Ries, A.J., Finomore, V.S., & Tossell, C.C. (in press). Calibrating trust in automation through familiarity with the autoparking feature of a Tesla Model X. *Journal of Cognitive Engineering and Decision Making*.

Tenhundfeld, N.L., de Visser, E.J., Ries, A.J., Finomore, V.S., & Tossell, C.C. (in press). Trust and distrust of automated parking in a Tesla Model X. *Human Factors*.

- Haring, K.S., Tobias, J., Waligora, J., Phillips, E., **Tenhundfeld, N.L.**, Lucas, G., de Visser, E.J., Gratch, J., & Tossell, C.C. (2019). Conflict mediation in human-machine teaming: Using a virtual agent to support mission planning and debriefing. In *Proceedings of the 28th IEEE International Conference on Robot and Human Interactive Communication (Ro-Man 2019)*.
- Tossell, C.C., Donadio, B.T., Stewart, A., **Tenhundfeld, N.L.**, Phillips, E., Driggs, J., Haring, K.S., & de Visser, E.J. (2019). Research with Undergraduate Students: Recommendations from Capstone Research at the United States Air Force Academy. In *Proceedings of the Human Factors and Ergonomics Society Conference*.
- *Alexander, S., *Roza, J., Donadio, B.T., **Tenhundfeld, N.L.**, de Visser, E.J., & Tossell, C.C. (2019). Transforming the Air Force mission planning process with virtual and augmented reality. In *Proceedings of the annual Systems and Information Engineering Design Symposium (SIEDS) Conference*.
- *Lorenz, G.T., *Ehrenstrom, J.S., *Ullman, T.B., *Palmer, R.C., **Tenhundfeld, N.L.**, de Visser, E.J., Donadio, B.T., & Tossell, C.C. (2019). Assessing control devices for the supervisory control of autonomous wingmen. In *Proceedings of the annual Systems and Information Engineering Design Symposium (SIEDS) Conference*.
- *Tomczak, K., *Pelter, A., *Gutierrez, C., *Stretch, T., *Hilf, D., Donadio, B.T., **Tenhundfeld, N.L.**, de Visser, E.J., & Tossell, C.C. (2019). Let Tesla park your Tesla: Driver trust in a semi-automated car. In *Proceedings of the annual Systems and Information Engineering Design Symposium (SIEDS) Conference*.
- Laitin, E., Tymoski, M.J., **Tenhundfeld, N.L.**, & Witt, J.K. (2019). The Uphill Battle for Action-Specific Perception. *Attention, Perception, & Psychophysics*, 81(3), 778 - 793
- Tenhundfeld, N.L.**, de Visser, E.J., Tossell, C.C., & Finomore, V.S. (2018). Evaluating and Modeling Human-Machine Teaming and Trust in Automation while on the Road. In *Proceedings of the 2nd International Neuroergonomics Conference*.
- Haring, K. S., Finomore, V., *Muramoto, D., **Tenhundfeld, N. L.**, Redd, M., Wen, J., & Tidball, B. (2018). Analysis of Using Virtual Reality (VR) for Command and Control Applications of Multi-Robot Systems. In *Proceedings of the 1st International Workshop on Virtual, Augmented, and Mixed Reality for HRI (VAM-HRI)*.
- Witt, J.K., **Tenhundfeld, N.L.**, & Tymoski, M.R. (2018). Is there a chastity belt on perception? *Psychological Science*, 29(1), 139-146.
- Tenhundfeld, N.L.**, Parnes, J., Conner, B.T., & Witt, J.K. (2017). Development of a psychometrically valid gun attitude scale. *Current Psychology*, 1-8.

- Tenhundfeld, N.L., & Witt, J.K.** (2017). Distances on hills look farther than distances on flat ground: Evidence from converging measures. *Attention, Perception, & Psychophysics*, 79(4), 1165-1181.
- King, Z.R., **Tenhundfeld, N.L., & Witt, J.K.** (2017). What you see and what you are told: Evidence for a genuinely perceptual action-specific effect. *Psychological Research*, 1-13.
- Witt, J.K., **Tenhundfeld, N.L., & Bielak, A.M.** (2016). Dissociating perception from judgment in the action-specific effect of blocking ease on perceived speed. *Attention, Perception, & Psychophysics*, 79(1), 283-297.
- Witt, J.K., Sugovic, M., **Tenhundfeld, N.L., & King, Z.R.** (2016). An action-specific effect on perception that survives all pitfalls. *Behavioral and Brain Sciences*, 39.
- Tenhundfeld, N. L. & Witt, J.K.** (2015). The effects of interoceptive attunement on action-specific perception. *Visual Cognition*, 23(7), 837-840.
- Tenhundfeld, N.L., Rowe, J., & Franco-Zamudio, J. L.** (2014). Achievement. In *Encyclopedia of Critical Psychology*. (pp. 18-20). Springer New York.
- *Gonzalez, V., **Tenhundfeld, N.L., *Dominguez, C., & Franco-Zamudio, J. L.** (2014). Collaboration. In *Encyclopedia of Critical Psychology* (pp. 254-256). Springer New York.
- *Shevlin, A., **Tenhundfeld, N.L., *Gonzalez, V., & Franco-Zamudio, J. L.** (2014). Domestic Violence, Overview. In *Encyclopedia of Critical Psychology* (pp. 484-487). Springer New York.
- *Zeringue, M., *Cline, K., **Tenhundfeld, N.L., & Franco-Zamudio, J. L.** (2014). Coping, Overview. In *Encyclopedia of Critical Psychology* (pp. 322-324). Springer New York.
- *Peltier, C., *Wilson, C., *Williford, W., **Tenhundfeld, N.L., & Franco-Zamudio, J. L.** (2014). Volunteerism. In *Encyclopedia of Critical Psychology* (pp. 2068-2072). Springer New York.

Popular Media Reports Regarding Tenhundfeld & Witt (2017)

How Your Body Changes Your Visual Perception as You Walk (June 15, 2017).
Psychology Today

Conference Presentations (* denotes undergraduate)

Katrein, S. P., Driggs, J.B., Phillips, E.K., Ries, A.J., Haring, K.S., Seech, T.R., **Tenhundfeld, N.L.**, de Visser, E.J., & Tossell, C.C. (2019). *Human factors research in USAFA's Warfighter Effectiveness Research Center*. Poster presented at the annual meeting of the *Human Factors Engineering Technical Advisory Group (HFE TAG)*, Aberdeen Proving Ground, MD.

*Lorenz, G.T., *Ehrenstrom, J.S., *Ullman, T.B., **Tenhundfeld, N.L.**, Neigel, A.R., de Visser, E.J., Donadio, B.T., & Tossell, C.C. (2019). *Autonomous Wingman: Examining Workload Differences Between Control Devices in the Supervisory Control of Unmanned Aerial Systems*. Poster presented at the annual meeting of *The Rocky Mountain Psychological Association*, Denver, CO.

*Titus, C., *Hammond, P., **Tenhundfeld, N.L.**, Tossell, C.C. (2019). *Optimizing airman running performance and cognition using real-time feedback from wearable sensors*. Poster presented at the annual meeting of the *Rocky Mountain Psychological Association*, Denver, CO.

*Lorenz, G.T., *Ehrenstrom, J.S., *Ullman, T.B., **Tenhundfeld, N.L.**, Neigel, A.R., de Visser, E.J., Donadio, B.T., & Tossell, C.C. (2019). *Autonomous Wingman: Examining Workload Differences Between Control Devices in the Supervisory Control of Unmanned Aerial Systems*. Poster presented at the annual meeting of *Human Factors and Applied Psychology*, Orlando, FL.

Tenhundfeld, N.L., Haring, K.S., Wen, J., Finomore, V., & Tossell, C. C. (2018). *Integration of Muse Headband EEG System to Detect Workload and G-Force Induced Loss of Consciousness (GLOC)*. Poster presented at the annual meeting of *Applied Human Factors and Ergonomics*, Orlando, FL.

*Moorehead, N.R., *Getlinger, M., Strang, A., **Tenhundfeld, N.L.**, Finomore, V.S., & Tossell, C.C. (2018). *Augmenting Airmen Endurance Performance Using Real-Time Physio-behavioral Feedback*. Poster Presented at the annual meeting of *Human Factors Engineering Technical Advisory Group (HFE TAG)*, Hurlburt Field, FL.

Laitin, E.L., Tymoski, M.J., **Tenhundfeld, N.L.**, & Witt, J.K. (2018). *Distances Appear Farther on Hills: Evidence for Top-Down Effects*. Poster presented at the annual meeting of the *Vision Science Society*, St. Pete Beach, FL.

*Fitzgerald, N.J., **Tenhundfeld, N.L.**, & Witt, J.K. (2018). *Failure is Not an Option: Testing the Effects of Automation Failure on the Perceptual System*. Poster presented at the annual meeting of the *Vision Science Society*, St. Pete Beach, FL.

- Elliot, A., Finomore, V.S., Tripp, L., **Tenhundfeld, N.L.**, & Tossell, C.C. (2018). *Comparison of the Heart Rate Capabilities of the Jabra Sport Plus Special Edition Headphones with Valencell Heart Rate Headphones*. Poster presented at the annual meeting of the *Rocky Mountain Psychological Association*, Denver, CO.
- *Moorehead, N.R., Strang, A., **Tenhundfeld, N.L.**, Finomore, V.S., & Tossell, C.C. (2018). *Augmenting Human Endurance Performance Using Real-Time Feedback*. Poster presented at the annual meeting of the *Rocky Mountain Psychological Association*, Denver, CO.
- Tenhundfeld, N.L.**, *Crandell, A., McClernon, C., & Finomore, V. (2017). *Motion seat use in flight simulators for new pilots*. Poster presented at the annual meeting of the *International Symposium on Aviation Psychology*, Dayton, OH.
- Tenhundfeld, N.L.** & Witt, J.K. (2017). *An uphill battle: Distances are reported as farther on a hill even when immediate feedback about estimation accuracy is provided*. Poster presented at the annual meeting of the *Vision Science Society*, St. Pete Beach, FL.
- Witt, J.K., **Tenhundfeld, N.L.**, Janzen, M.R., Tymoski, M.T., & Wilmer, J. (2017). *Action-specific effects in perception and their mechanisms*. Poster presented at the annual meeting of the *Vision Science Society*, St. Pete Beach, FL.
- Tymoski, M.T., **Tenhundfeld, N.L.**, Janzen, M.R., & Witt, J.K. (2017). *I cannot afford both: Walk-through-ability affordance judgments do not correlate to the distance-on-hill effect*. Poster presented at the annual meeting of the *Vision Science Society*, St. Pete Beach, FL.
- Janzen, M.R., **Tenhundfeld, N.L.**, Tymoski, M.T., & Witt, J.K. (2017). *Distance on hill overestimation is not influenced by hiking experience*. Poster presented at the annual meeting of the *Vision Science Society*, St. Pete Beach, FL.
- Tenhundfeld, N.L.** & Witt, J.K. (2016). *Three's company: Energetics' effect on perception as shown with blindwalking, Visual Matching, and Verbal Estimates*. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- Janzen, M., **Tenhundfeld, N.L.**, & Witt, J.K. (2016). *That's so far! Experienced hikers also overestimate distances on a hill*. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- Witt, J.K., King, Z.R., & **Tenhundfeld, N.L.** (2015). *Losing control in action-specific effects: Evidence for Bayesian integration*. Talk presented at Psychonomic Society Annual Meeting, Chicago, IL.

Tenhundfeld, N.L., & Witt, J.K. (2015) The effects of interoceptive attunement on action-specific perception. Talk presented at Object Perception, Attention, and Memory Conference, Chicaco, IL.

King, Z.R., **Tenhundfeld, N.L., & Witt, J.K. (2015).** *An action-specific perception effect that withstands feedback.* Poster presented at the Object Perception, Attention and Memory Conference, Chicago, IL.

Tenhundfeld, N.L. & Witt, J.K. (2015). *Perceptual distortions of distances on a hill depend on interoceptive awareness.* Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.

King, Z.R., **Tenhundfeld, N.L., & Witt, J.K. (2015).** *An action-specific perception effect that withstands feedback.* Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.

Witt, J.K., Conner, B.T., **Tenhundfeld, N.L., & Parnes, J.E. (2015).** *Gun-embodiment biases on object perception are affected by prior experience.* Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.

Tenhundfeld, N. L. & Witt, J. K., (2014). *Informed perception: Catching ability changes perceived size of ball.* Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.

Tenhundfeld, N.L., *LaChute, C., *Martin, E., *Iglesias, D. J., *Cline, K., *Shevlin, A., *Babbington, A., *Himmel, A., & Franco-Zamudio, J. L. (2013). *Identifying sources of academic self-efficacy among underrepresented undergraduates in the sciences.* Poster presented at the *Georgia Undergraduate Research in Psychology Conference*, Kennesaw, GA.

Sole Instructor Teaching Experience

Human Factors
University of Alabama in Huntsville

Statistics
University of Alabama in Huntsville

Introduction to Behavioral Science
US Air Force Academy

Systems Engineering Capstone
US Air Force Academy

Behavioral Science Capstone
US Air Force Academy

Sensation & Perception
Colorado State University

Cognitive Psychology Lab
Colorado State University

Sensation & Perception Lab
Colorado State University

Ad Hoc Manuscript Reviewing Activity

Human Factors

Human-Robot Interaction

Journal of Experimental Psychology: Applied

Psychonomic Bulletin & Review

Social Science Journal

Ergonomics

Volunteer Positions / Service

APA Division 19 (Society for Military Psychology)
Student Affairs Committee (2016 – 2019)
Chair-Select (2016 – 2017)
Chair (2017 – 2018)
Past-Chair (2018 – 2019)
Regional Student Representative for the Western U.S. (2014 – 2015)

PSI CHI Faculty Advisor (2019 – Present)

Students Advised

Jake Davis (current)

PhD Committees

2018

Jaymen Elliott (University of Technology Sydney)