Curriculum Vitae

Robert S. Gutzwiller, PhD

Assistant Professor, Arizona State University, Human Systems Engineering
Associate Director, Center for Human, AI, and Robot Teaming (CHART)
Affiliate, Center for Cybersecurity and Trusted Foundations (CTF)
Ira A. Fulton Schools of Engineering
Mesa, AZ, USA.

I create transdisciplinary solutions for tough human problems – using the science of human factors psychology, attention, decision making, and engineering – to systematically and foundationally improve and reshape human work.

Personal

Citizenship: United States of America
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Email: robert.gutzwiller@asu.edu
Web – Biographic Sketch, Publications
Citations: Google Scholar

Education

Ph.D., Cognitive Psychology, Colorado State University (2014)
Switch choice in applied multi-task management
Advisors: Ben Clegg, Chris Wickens, Kurt Kraiger, Stephen Hayne

M.S., Cognitive Psychology, Colorado State University (2011)
Individual differences in working memory affect situation awareness
Advisors: Ben Clegg, Ed Delosh, Stephen Hayne

B.S., Psychology, Baylor University (2008)
Advisor: Charles Weaver, III

Experience

08/2018- **Assistant Professor,** Arizona State University, Ira A. Fulton Schools of Engineering (The Polytechnic School), Human Systems Engineering Program, Mesa, AZ, USA.

- Management, execution, and responsibility for over $2.81 Million of awarded funding while conducting mentorship and supervision of 25 master's students,

10 PHD students dissertations, and 1 post-doctoral researcher, and teaching undergraduate and advanced seminars in applied attention theory, human systems engineering, and human systems integration.

- *Associate Director*, Center for Human, AI & Robot Teaming (CHART).
- *Affiliate Faculty* of ASU's Cybersecurity and Trusted Foundations (CTF) Center.
- *Establishing Chair* of the *Cybersecurity Technical Group* for the Human Factors and Ergonomics Society (2019-2022).
- *Chair* of the Council of Technical Groups for the Human Factors and Ergonomics Society (2022-2025)
- *Committee / Track Chair* for Cybersecurity, ErgoX conferences (2020, 2021, & 2022)
- *Leader* of weekly Human Systems Engineering program brownbag presentation series (Fall 2019-present).
- Service on HSE PhD Milestone Development committee (2018-2019)
- Service on a double hire Tenure-Track Faculty hiring committee for Human Systems Engineering (2022)

2014-2018 **Scientist**, Space and Naval Warfare Systems Center (SPAWAR) Pacific. (now *Naval Information Warfare Center - NIWC),* San Diego, CA, USA

- Applied the science of human attention and automation-interaction in complex unmanned systems testbeds, shipboard command centers, and defensive cyberspace operations as part of being awarded $7 Million+ in competitive funds.
- Led complex, multidisciplinary teams of computer scientists, software developers, engineers, acquisition professionals, and human factors scientists to build complex, human in the loop simulations of a virtual cyber defense environment, and a command center on a ship, practicing user-centered design methods, including goal-directed and cognitive task analysis techniques, user research methods, and usability testing to improve user experience (UX).
- Created and maintained relationships with a variety of internal and external sponsors and customers.
- Published 14+ peer-reviewed articles in high quality outlets.

2008-2014 **Graduate Student**, Colorado State University, Fort Collins, CO, USA
Worked on two grants in partnership with Ben Clegg and Chris Wickens. Taught several courses and guest lectured routinely.

<u>NASA - Modeled Human Performance for Long-Duration Space Missions</u>

Examined and modeled cognition under fatigue, multi-task management, and automated failure states of a complex system of systems. ● Selected tasks and simulations for study. ● Conducted a literature review on task switching choice. ● Created, analyzed and explored models over a series of programmatic experiments in multitasking.

<u>Office of Naval Research (ONR) - Adaptive Supervisory Control</u>

Applied knowledge of training, automation interaction, and feedback, into experiment design to test control strategies of multiple autonomous systems. ● Supervised data collection, conducted statistical analyses, and directed a large team of up to 15 research assistants. ● Core programming of a microworld simulation. ● Mentored two graduate students.

2011-2013 **Research Intern**, Space and Naval Warfare Systems Center Pacific, (now *Naval Information Warfare Center - NIWC),* San Diego, CA, USA

As a winner of three scholarships, I completed several paid internships with the US Navy, working closely with scientists and engineers on applied projects in autonomy, including UV Sentry (press article here).

2009-2012 **Research Associate**, Center for Error Management, Denver, CO, USA

Aided in research on training skills necessary for human error avoidance in phlebotomy.
● Developed a research proposal to reduce error in blood draws in collaboration with Center for Error Management partners.

Research Funding

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Awarded Proposals, totaling >$10.8 Million as PI or Co-PI

$2,443,976 awarded. Oppositional Human Factors (OHF) Research.
Sole PI: Robert Gutzwiller.
Goal: Develop and explore human factors methods to study and exploit potential cyber attackers and their cognition.
Source**:** *Department of Defense*, **2018-present**

$250,000 awarded. CAPTURE - Cognitive Analysis Process Toward Understanding of Reverse Engineering.
PI: **Robert Gutzwiller.**
Goal: Use understanding of human attention and human performance to measure and understand the selection of points of interest in reverse engineering and binary analysis for cybersecurity.
Source: DOD-*Defense Advanced Research Projects Agency (DARPA),* I20 CHESS Program, **2022-2023**

$271,298 awarded. Understanding influence networks and designing intervention points.
PI: Robert Gutzwiller. Co-PI: Scott Ruston, Andrew Maynard, Hazel Kwahn.
Goal: Study the behavior, social and cognitive, of influence networks and design ethical tests of interventions using human factors.
Source: *Massachusetts Institute of Technology (MIT),* **2020.**

$55,000 awarded. Predicting automation surprise using attentional modeling.
PI: Robert Gutzwiller. Co-I Hansol Rheem (post-doc).
Goal**:** Use a model of attention to understand and predict surprise driven by automation malfunction.
Source: *Arizona State University, Global Security Initiative*. **2020**.

$199,258 awarded. Tools for Implementing Speech Agents in Crew Resource Management Training Systems.
PI: Scotty Craig. **Co-PIs: Robert Gutzwiller,** Nancy Cooke**.**
Goal: Designing a software training tool for the Navy that will help familiarize trainees with phraseology.
Source: DOD- STTR Phase II subaward from *NAVAIR* to *Optimal Synthesis*.
2019-2020

$5,587,000 awarded. Research and design of a contextualized operational display for cyber defense.
Co-PIs: Robert Gutzwiller, Kristen Liggett, Eric Holder.
Goal: Research and develop a cross-DoD service solution for cyber defenders to improve information sharing, team coordination and awareness.
Source: DOD-*Office of the Assistant Secretary of Defense, Behavioral Social Sciences in Cyber Security.* **2018**-2021**.**

$48,000 awarded. Designing a joint contextual operating platform for cyber defense.
Co-PIs: Robert Gutzwiller, Kristen Liggett, & Eric Holder.
Goal: Research and develop a cross-service solution for cyber defenders to improve information sharing, team coordination and awareness.
Source: DOD-*Assistant Secretary of Defense for Research and Engineering.* **2017**.

$980,000 awarded. Battlespace management aids, experimentation, and development.
PI: Robert Gutzwiller, Co-PI: Mark Iversen & Karl Van Orden.
Goal: Use goal-directed task analysis to develop and test battle management aids, course of action tools, and decision aids for use in planning and real-time Navy operations.
Source: DOD-*Office of Naval Research, Naval Innovative Science and Engineering Grant.* **2016**-2018.

$590,000 awarded. Human limitations and impediments for cyber situation awareness.
Sole PI: Robert Gutzwiller.
Goal: Understand the cognition of the cyber defensive analyst in depth and assess, then improve their situation awareness. A defensive scenario was built and experiments were conducted.
Source: DOD-*Office of Naval Research, Naval Innovative Science and Engineering.* **2015**-2018.

$460,000 awarded. Ambient activity monitors for hidden system information.
PI: Jamie Lukos, **Co-PIs: Robert Gutzwiller**, Sunny Fugate.
Goal: Develop novel software visualization techniques to expose otherwise hidden system states to users. We want these to be unobtrusive for detecting cyber threats. Initial pilots were positive, we have a patent in progress and a publication on a formal experiment now under review.
Source: DOD-*Office of Naval Research, In-House Laboratory Independent Research Program Grant.* **2015**-2018.

Under Review

$1,353,305 under review. Reimagining Security With Cyberpsychology-Informed Network Defenses (ReSCIND).
Goal: Leverage psychology of attention and decision-making to disrupt potential cyber attackers.
Source: DOD-*Intelligence Advanced Research Projects Activity (IARPA),* **2023-**

Unfunded

$888,313 unfunded. Pipelined Reasoning of Verifiers Enabling Robust Systems (PROVERS). **PI: Robert Gutzwiller.**
Source: *DOD-DARPA: Information Innovation Office (IIO)*, **2023**

$440,781 unfunded. Cognition-Inspired Model of Diagnostic Image Quality for Mammography. PI: Jorge Caviedes. **Co-PI: Robert Gutzwiller.**
Source: *National Institutes of Health (NIH),* **2022**

$1,233,301 unfunded**.** Human interactive machine learning (HIML) for calibrated trust in teams of unmanned systems (UxS). **PI: Robert Gutzwiller.**
Source: *Office of Naval Research (ONR)*, **2023**

$100,000 unfunded. Listicles and Threads: Ingredients for a 'Disinformation Sandwich'?. PI: **Robert Gutzwiller**, Co-I: *Raghav Bhat.*
Source: *Meta Corporation*. **2022**

$5,400,000 unfunded**.** Trustworthy AI Systems for Enterprise Cyber Operations. PI: Peng Liu, Co-PIs: **Robert Gutzwiller**, Minghui Zhu, Sushil Jajodia, Kun Sun, George Cybenko, Nancy Cooke, Polo Chau, & Xiaoyan Sun.
Source: *National Science Foundation (NSF) - Secure and Trustworthy Cyberspace Frontiers (SaTC Frontiers).* **2021.**

$50,000 unfunded**.** Intel Rising Star Award to Robert Gutzwiller.
ASU Provost's Office selected Robert Gutzwiller as one of the university's two approved nominations for the Intel Rising Star Award program.
Source: *Intel Corporation,* **2021.**

$5,235,158 unfunded**.** PERSEUS: PERceptually-enabled SEmantic User-assistance System. PI: Pavan Turaga. **Co-PI:** Chitta Baral, Baoxin Li, **Robert Gutzwiller**, Yezhou Yang, Robert LiKamWa.
Source: *DOD-Defense Advanced Research Projects Agency (DARPA).*
2021-2025

$7,500,000 unfunded**.** HUMBOLDT: HUMan-BOt Learning, Decision-making and Teaming for Cyber Autonomy. PI: Peng Liu. **Co-Is: Robert Gutzwiller,** Sushil Jajodia, George Cybenko, VS Subrahmanian.
Source: DOD-*Army Research Office (ARO),* Multi-University Research Initiative **2021**.

$168,997 unfunded**.** Hacking Sunk Cost. **PI: Robert Gutzwiller**, Co-PI: Coty Gonzalez.
Source**:** *Department of Defense*, **02/2020**

$2,174,761 unfunded**.** ACE: Selective Task Reliance on Autonomy through Interfaces for the Growth of Human Trust (STRAIGHT). Partner with Next Century Corporation (NCC). **ASU PI: Robert Gutzwiller.**
Source: DOD-*Defense Advanced Research Projects Agency (DARPA), Strategic Technologies Office (STO*), PM: LTC Dan Javorsek. **7/2019.**

$483,961 unfunded. Interactive Machine Learning (IML) to Enhance Human-Agent Teaming. **Sole PI**: Robert Gutzwiller.
Source: DOD-*Office of Naval Research (ONR) Young Investigator Program (YIP)*, **08/2019**

$99,000 unfunded. Dynamic degree of artificial intelligence to individualize support for effective teamwork. PI: Ben Clegg. **Co-PIs**: Chris Wickens, Eric Heggestad, Marissa Shuffler, & **Robert Gutzwiller.**

Source: DOD-*Army Research Lab*, **12/2018**

$99,974 unfunded. Interactive Machine Learning (IML) to Enhance Human Agent Teaming. **PI: Robert Gutzwiller**. Co-PIs: Erin Chiou, Spring Berman.
Source: DOD-*Army Research Lab*, **12/2018**

$70,000 unfunded. Using the STOM model to predict driver attention during transfer of control in autonomous vehicles. **Sole PI: Robert Gutzwiller.**
Source: *Toyota Collaborative Safety Research Center*, **10/2018**.

$65,000 unfunded**.** Applied human-autonomy interaction.
PI: Josh Kvavle, **Co-PIs**: **Robert Gutzwiller**, Jamie Lukos, Sunny Fugate.
Source: DOD-*Space and Naval Warfare Systems Center, Workforce Development*. **2016**.

$99,888 unfunded**.** Memory for, and intention to apply, error management training in blood testing industries.
PI: Ben Clegg, **Co-PIs**: Kurt Kraiger & **Robert Gutzwiller**.
Source: *Agency for Healthcare Research and Quality (AHRQ), National Institutes of Health (NIH).* **2009**.

Publications *(Italics indicate student and mentee co-authors)* (return to top)

57 peer-reviewed papers, 1 book, 2 book chapters, 2 media articles, 7 technical reports, work cited over 1977 times, *h*-index 21, *i10*-index 36.

Peer-reviewed Journal Articles

Gutzwiller, R. S., *Rheem, H.,* Ferguson-Walter, K. J., *Lewis, C. M., Johnson, C. K.,* & Major, M. (2023). Exploratory analysis of decision-making biases of professional red teamers in a cyber-attack dataset. *Journal of Cognitive Engineering & Decision Making.*

Lewis, C. M., & **Gutzwiller, R. S.** (2023). Examining Post-Error Behavior in a Complex Multitasking Environment. *Cognitive Research: Principles & Implications*

Ferguson-Walter, K.J., Major, M., *Johnson, C. K., Johnson, C. J., Scott, D. D.,* **Gutzwiller, R.S.,** & Shade, T. B. (2023). Cyber Expert Feedback: Experiences, Expectations, and Opinions About Cyber Deception. *Computers & Security*

Gutzwiller, R. S., Dykstra, J., & Payne, B. (2020). Gaps and opportunities in situational awareness for cybersecurity. *Digital Threats: Research and Practice, 1*(3), 1-6.

Gutzwiller, R. S., & Reeder, J. (2020). Dances with algorithms: Interactive development creates greater preference and trust in machine-learned behaviors. *Human Factors, 63*(5), 854-867.

Gutzwiller, R. S., Wickens, C. D., & Clegg, B. A. (2019). The role of reward and effort over time in task switching. *Theoretical Issues in Ergonomics Science*, *20*(2), 196-214.

Roscoe, R., Becker, D. V., Branaghan, R. J., Chiou, E. K., Gray, R., Craig, S. D., **Gutzwiller, R. S.,** & Cooke, N. J. (2019). Bridging psychology and engineering to make technology work for people. Special issue of *American Psychologist, 74*(3), 394-406.

Wickens, C. D., **Gutzwiller, R. S.,** Vieane, A., Clegg, B. A., & Janes, J. (2016). Time sharing between robotics and process control: Validating a model of attention switching. *Human Factors*, *58*(2), 322-343. ***Won the Jerome H. Ely Award for Most Outstanding Paper in Human Factors.**

Gutzwiller, R. S., Wickens, C. D., & Clegg, B. A. (2016). The role of time-on-task in task switching choice. *Journal of Applied Research in Memory & Cognition*, *5,* 176-184.

Wickens, C. D., **Gutzwiller, R. S.,** & Santamaria, A. (2015). Discrete task switching in overload: A meta-analyses and a model. Special issue of *International Journal of Human Computer Studies, 79,* 79-84.

Blalock, L. D., Sawyer, B., Kiken, A., **Gutzwiller, R. S**., McGill, C. L., & Clegg, B. A. (2014). Cognitive load while driving impairs memory of moving but not stationary elements within the environment. *Journal of Applied Research in Memory and Cognition, 5*(2), 95-100.

Gutzwiller, R. S., Clegg, B. A., & Blitch, J. G. (2013, invited). Part-task training in the context of automation: Current and future directions. *American Journal of Psychology*, *126*(4), 417-432.

Gutzwiller, R. S., & Clegg, B. A. (2013). The role of working memory in levels of situation awareness. *Journal of Cognitive Engineering and Decision Making, 7*(2), 141-154.

Peer-reviewed Proceedings Papers

Gutzwiller, R. S., *Gilbert, M.*, *Drescher, T.J.,* Ferguson-Walter, K. J., *Campbell, N., Johnson, C. J., & Scott, D.* (2023). Frustration, Confusion, Surprise, Confidence, and Self-doubt: Cyber Operators' Affects during a Realistic Experiment. *Proceedings of the Human Factors and Ergonomics Annual Conference.*

Johnson, C. J., Lieber, C., **Gutzwiller, R. S.,** Cooke, N. J. (2023). Team Workload in Action Teams: Exploring the Impact of Interdependence. *Proceedings of the Human Factors and Ergonomics Annual Conference.*

Caviedes, J. E., Patel, B. K., **Gutzwiller, R.,** Li, B., *Bhat, K. R.,* & Chhabra, S. (2022). A Cognitive Perspective on Subjective and Objective Diagnostic Image Quality Models. *2022 IEEE International Conference on Image Processing (ICIP), Bordeaux, France, 2022*, pp. 246-250, doi: 10.1109/ICIP46576.2022.9897481.

Bhat, R., Curley, R.J., & **Gutzwiller, R. S.** (2022). Researching Influence Operation (IO) Mitigation: An HFE Step Forward. *Proceedings of the Human Factors and Ergonomics Annual Conference.*

Johnson, C. J., Ferguson-Walter, K. J., **Gutzwiller, R. S.**, Scott, D., & Cooke, N.

J. (2022). Investigating Cyber Attacker Team Cognition. *Proceedings of the Human Factors and Ergonomics Annual Conference.*

Ferguson-Walter, K. J., **Gutzwiller, R. S**., Scott, D., & *Johnson, C. J.* (2021). Oppositional human factors in cybersecurity: A preliminary analysis of affective states. *Workshop on Human-Centric Software Engineering & Cyber Security (HCSE&CS-2021)*

Johnson, C. K., **Gutzwiller, R. S**., *Gervais, J.,* Ferguson-Walter, K. J., Fugate, S. J., & Bilinski, M. (2021). Decision-making biases and cyber attackers. *Workshop on Human-Centric Software Engineering & Cyber Security (HCSE&CS-2021)*

Rheem, H., Steelman, K., & **Gutzwiller, R. S.** (2021). SEEV Modeler: A GUI-Based Tool for the SEEV Model Simulation. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*

Zabala, G., & **Gutzwiller, R. S.** (2021). Validating the Strategic Task Overload Management (STOM) Model Using MATB II and Eye-tracking. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*

Gutzwiller, R. S., & Van Bruggen, D. (2021). Human factors in automating cyber operations. *Proceedings of the 54th Hawaii International Conference on System Sciences.*

Burton, A., Chiou, E. K., & **Gutzwiller, R. S.** (2020). A brief literature review on human perceptions of service robots with a focus on healthcare. *Human Factors and Ergonomics Society Annual Meeting.*

Das, S., **Gutzwiller, R. S.,** Roscoe, R. D., Rajivan, P., Wang, Y., Camp, L. J., & Hoyle, R. (2020). Humans and technology for inclusive privacy and security. *Human Factors and Ergonomics Society Annual Meeting.*

Ferguson-Walter, K. J., Major, M. M., van Bruggen, D. C., Fugate, S. J., & **Gutzwiller, R. S.** (2019). The World (of CTF) is Not Enough Data: Lessons learned from a cyber deception experiment. *IEEE International Conference on Trust, Privacy and Security in Intelligent Systems and Applications (TPS-ISA).*

Nyre-Yu, M., **Gutzwiller, R. S.**, & Caldwell, B. (2019). Observing cyber security incident response environments: Qualitative themes from field research. *Proceedings of the Human Factors and Ergonomics Society, 63,* 437-441.

Gutzwiller, R. S., Ferguson-Walter, K. J., & Fugate, S. J. (2019). Are cyber attackers thinking fast and slow? Exploratory analysis reveals evidence of decision-making biases in red teamers. *Proceedings of the Human Factors and Ergonomics Society, 63,* 427-431.

Gutzwiller, R. S., Chiou, E. K., Craig, S., *Lewis, C. M., Lematta, G*., & *Hsiung, C.-P.* (2019). Positive bias in the 'Trust in Automated Systems Survey'? An examination of the Jian et al. (2000) scale. *Proceedings of the Human Factors and Ergonomics Society, 63,* 217-221.

Paul, C.L., Blaha, L. M., Bos, N., Fallon, C. K., Gonzalez, C., & **Gutzwiller, R. S.** (2019). Opportunities and challenges for human-machine teaming in cybersecurity operations. *Proceedings of the Human Factors and Ergonomics Society, 63,* 442-446.

Gutzwiller, R. S., Cosley, D., Ferguson-Walter, K., Fraze, D., & Rahmer, R. (2019). Panel: Research Sponsors for Cybersecurity Research and the Human Factor. *Proceedings of the Human Factors and Ergonomics Society, 63,* 422-426.

Shulte, A., Donath, D., Lange, D., & **Gutzwiller, R. S.** (2018). A heterarchical urgency-based design pattern for human automation interaction. In *Engineering Psychology and Cognitive Ergonomics: 15th International Conference, EPCE 2018 Proceedings* (Vol. 10906, p. 42-54).

Gutzwiller, R. S., Ferguson-Walter, K. J., Fugate, S. J., & Rogers, A. (2018) "Oh, look! A butterfly!" A framework for distracting attackers to improve cyber defense. *Proceedings of the Human Factors and Ergonomics Society, 62*, 272-276. ***Won the Marc Resnick Best Paper Award.**

Gutzwiller, R. S., Espinosa, S. H., Kenny, C., & Lange, D. S. (2018). A design pattern for working agreements in human-autonomy teaming. *Advances in Intelligent Systems and Computing, 591*, 12–24.

Wickens, C. D., & **Gutzwiller, R. S.** (2017). The status of the Strategic Task Overload Model (STOM) for predicting multi-task management. *Proceedings of the Human Factors and Ergonomics Society, 61,* 757–761.

Borghetti, B., Funke, G., Pastel, R., & **Gutzwiller, R. S.** (2017). Cyber human research from the cyber operator's view. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 61,* 350.

Gutzwiller, R. S., & Sitzman, D. M. (2017). Examining task priority effects in multi-task management. *Proceedings of the Human Factors and Ergonomics Society, 61*, 762–766.

Dzieciuch, I., Reeder, J., **Gutzwiller, R. S**., Gustafson, E., Coronado, B., Martinez, L., … Lange, D. S. (2017). Amplifying human ability through autonomics and machine learning in IMPACT. *Proceedings of SPIE Micro- and Nanotechnology Sensors, Systems, and Applications IX, 10194,* 101941Y1-11.

Gutzwiller, R. S., & Reeder, J. (2017). Human interactive machine learning for trust in teams of autonomous robots. *In IEEE Conference on Cognitive and Computational Aspects of Situation Management, CogSIMA*.

Vieane, A. Z., Funke, G. J., **Gutzwiller, R. S.**, Mancuso, V. F., Sawyer, B. D., & Wickens, C. D. (2016). Addressing human factors gaps in cyber defense. *Proceedings of the Human Factors and Ergonomics Society, 60*, 770–773.

Fugate, S., Lukos, J., **Gutzwiller, R. S.**, & Lester, C. (2016). Position paper: Proposing ambient visualization and pre-attentive processing for threat

detection. In *ACM International Conference Proceeding Series (Part F1306).*

Gutzwiller, R. S., & Lange, D. S. (2016). Tasking teams: Supervisory control and task management of autonomous unmanned systems. In *International Conference on Virtual, Augmented and Mixed Reality* (pp. 397-405). Springer International Publishing.

Gutzwiller, R. S., Hunt, S. M., & Lange, D. S. (2016). A task analysis toward characterizing cyber-cognitive situation awareness (CCSA) in cyber defense analysts. In *IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA),* 14-20.

Lange, D. S., & **Gutzwiller, R. S.** (2016). Human-autonomy teaming patterns in the command and control of teams of autonomous systems. In *International Conference on Engineering Psychology and Cognitive Ergonomics* (pp. 179-188). Springer International Publishing.

Gutzwiller, R. S., Fugate, S., Sawyer, B., & Hancock, P. A. (2015). The human factors of cyber network defense. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 59,* 322-326. ***Nominated for best paper award.**

Gutzwiller, R. S., Wickens, C. D., & Clegg, B. A. (2015). The role of individual differences in the executive attentional network in switching choice and multi-task management. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 59*, 632-636.

Gutzwiller, R. S., Lange, D. S., Reeder, J., Morris, R. L., & Rodas, O. (2015). Human-computer collaboration in adaptive supervisory control and function allocation of autonomous system teams. *In International Conference on Virtual, Augmented and Mixed Reality* (pp. 447-456). Springer International Publishing.

Clegg, B. A., Wickens, C. D., Vieane, A., **Gutzwiller, R. S.**, & Sebok, A. (2015). Circadian effects on fault management and multitasking. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 59,* 627-631.

Gutzwiller, R. S., Wickens, C. D., & Clegg, B. A. (2014). Workload overload modeling: An experiment with MATB II to inform a computational model of task management. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 58,* 849-853.

Clegg, B. A., Vieane, A., Wickens, C. D., **Gutzwiller, R. S.**, & Sebok, A. (2014). The effects of automation-induced complacency on fault diagnosis and management performance in process control. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 58*, 844-848.

Lange, D. S., **Gutzwiller, R. S.**, Verbancsics, P., & Sin, T. (2014). Task models for human-computer collaboration in supervisory control of teams of autonomous systems. *IEEE Conference on Cognitive and Computational Aspects of Situation Management, CogSIMA*, 97-102.

Gutzwiller, R. S., Clegg, B. A., Smith, C. A. P., *Lewis, J. L.,* & *Patterson, J. D.* (2013). Predicted failure alerting in a supervisory control task does not always enhance performance. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 57*, 364-368.

Lange, D., Verbancsics, P., **Gutzwiller, R. S.**, & Reeder, J. (2013). Trust in sparse supervisory control. *Trust and Autonomous Systems: Papers from the 2013 AAAI Spring Symposium,* 39-43.

Gutzwiller, R. S., & Clegg, B. A. (2012). Training for unmanned vehicle allocation with automation in a dynamic microworld. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 56*, 2497-2501.

Blitch, J. G., Bauder, C. J., **Gutzwiller, R. S.**, & Clegg, B. A. (2012). Correlations of spatial orientation with simulation based robot operator training. *Proceedings of the 4th International Conference on Applied Human Factors & Ergonomics (AHFE),* 1571–1580.

Lange, D., Verbancsics, P., **Gutzwiller, R. S.**, Reeder, J., & Sarles, C. (2012). Command and control of teams of autonomous systems. *Proceedings of the 17th Monterey Workshop for the Development, Operation and Management of Large-Scale Complex IT Systems,* Oxford, UK.

Sarles, C., Lange, D., Duarte, C., Moraski, L., Brizzolara, B., & **UV Sentry Team**. (2012). UV Sentry: A collaborative approach to creating a collaborative system. *American Society of Naval Engineers Day conference "Naval Warfare – Critical Engineering Challenges"*, Arlington, VA.

Books Written

Wickens, C. D., McCarley, J. S., & **Gutzwiller, R. S.** (2022). *Applied Attention Theory, 2nd Edition.* New York, NY: Taylor & Francis.

Chapters

Huang, L., Cooke, N. J., **Gutzwiller, R. S.**, Chiou, E. K., Berman, S., Demir, M., & Zhang, W. (2021). Distributed Dynamic Team Trust in Human, Artificial Intelligence, and Robot Teaming. In J. Lyons & C. Nam (eds.), *Trust in Human Robot Interaction.*

Heggestad, E. D., Clegg, B. A., Goh, A., & **Gutzwiller, R. S.** (2012). How automation-based training aides and learner cognitive abilities impact training effectiveness. In A. Healy and L. Bourne (Eds.), *Training cognition: Optimizing efficiency, durability, and generalizability* (pp. 112-133). New York, NY: Taylor & Francis.

Articles

Van Orden, K., & **Gutzwiller, R. S.** (2018). User-centered design should be a cornerstone requirement for system development. *Naval Proceedings, 144(10)*, 1388.

Van Orden, K., Lukos, J., **Gutzwiller, R. S.**, & Buck, H. (2018). Not just a fad: A cognitive science rationale for use of augmented and virtual reality technologies for the Warfighter. *Future Force, 5*(3).

Submitted for Peer Review

Lee, J., & **Gutzwiller, R. S.** (under review). A review of the use of eye tracking as a measure of trust.

Bhat, R., Burnett, A., **Gutzwiller, R. S.**, Nyre-Yu, M., *Seymour, D.,* Fugate, S., Maldonado, F., & Amresh, A. (under review*).* Understanding Vulnerability Discovery in Expert and Novice Binary Analysts' Behavior.

Gutzwiller, R. S., Fugate, S., Weigand, K., & Lukos, J. (under revision). An Empirical Test of a Visual Display for End Users to Detect PDF File Cyber Threats.

Lewis, C. M., **Gutzwiller, R. S.,** *Johnson, C. K*. (under revision). Instructed Priority Influences Task Selection Decisions in Multi-task Management.

In Preparation

Bhatti, S., Demir, M., *Johnson, C. J.,* Cooke, N. J., Chiou, E. K., & **Gutzwiller, R. S.** (in prep). Examining Anticipatory Communication and Its Relationship with Interpersonal Trust in the Context of Human-Machine Teaming.

Johnson, C. K., **Gutzwiller, R. S.,** Lewis, C. M., & Ferguson-Walter, K. J. (in prep). Sunk Cost in Cyber-Relevant Domains.

Johnson, C. J., **Gutzwiller, R. S.,** Cooke, N. J., & Holder, E. (in prep). A review of team workload theory and measures.

McAlphin, M., **Gutzwiller, R. S.**, & *Seymour, D.* (in prep). Responses to and Recognition of Simultaneously Occurring Driving Hazards using Auditory and Visual In-Vehicle Alerts.

Technical Report Authorships

National Academies of Sciences, Engineering, and Medicine (2021). *Looking Ahead at the Cybersecurity Workforce at the Federal Aviation Administration.* Washington, DC: The National Academies Press. https://doi.org/10.17226/26105.

Lange, D., Miller, C., Schulte, A., Donath, D., Shively, R., Coppin, G., Burski, L., **Gutzwiller, R. S.,** Espinosa, S., Kenny, C., Neerincx, M., Chen, J., & Barnes, M. (2020). Human Autonomy Teaming Design Patterns. In *Human-Autonomy Teaming: Supporting Dynamically Adjustable Collaboration, NATO STO TR-HFM-247* (pp. 4(1-59)). https://www.researchgate.net/publication/354472303_Human-Autonomy_Teaming_Supporting_Dynamically_Adjustable_Collaboration

Johnson, C. K., **Gutzwiller, R. S.,** Ferguson-Walter, K. J., & Fugate, S. J. (2020). A cyber-relevant table of decision making biases and their definitions. *ResearchGate Open Publication.* doi: 10.13140/RG.2.2.14891.87846/1, Available

from www.researchgate.net/publication/344106644_A_Cyber-Relevant_Table_of_Decision_Making_Biases_and_their_Definitions

Gutzwiller, R. S. (2019). Situation awareness in defensive cyberspace operations: An annotated bibliographic assessment through 2015. *DTIC Technical Report* via Naval Information Warfare Center. Available from https://apps.dtic.mil/dtic/tr/fulltext/u2/1074248.pdf

Van Orden, K.F., Lemon, A.G., & **Gutzwiller, R.S.** (2017). Winning by design: How to improve the performance of shipboard command, control and combat system operator interfaces while reducing manpower requirements and associated costs. SSC Pacific Technical Report 3068: *Space and Naval Warfare Systems Center Pacific*, San Diego, CA.

Bass, T., Zuech, R., & **Gutzwiller, R. S.** (2017). Virtualized Cyberspace - Visualizing patterns & anomalies for cognitive cyber situational awareness. *ResearchGate* Open Publication. Available from https://www.researchgate.net/publication/320008976_Virtualized_Cyberspace_-_Visualizing_Patterns_Anomalies_for_Cognitive_Cyber_Situational_Awareness

Fugate, S., & **Gutzwiller, R. S.** (2016). Re-thinking cyber symbology. *NATO Technical Report STO-MP-IST-HFM-154.* Available from https://www.researchgate.net/publication/314151044_Rethinking_Cyberspace_Symbology.

Patent Applications

Fugate, S. J., Lukos, J. R., **Gutzwiller, R. S.**, & Wiegand, K. P. (2016). Computer System Anomaly Detection Using Human Responses to Ambient Representations of Hidden Computing System and Process Metadata. United States of America. *(abandoned).*

Invited Seminars, Presentations, & Panels

Gutzwiller, R. S. (2023, virtual presentation). What is cyberpsychology? Opening presentation for the *2023 Hawaii International Conference on System Sciences Workshop* on *Cyberpsychology, Cybersecurity, and the Human Factor*.

Gutzwiller, R. S. (2022, virtual presentation). Oppositional Human Factors. Invited seminar to *Cognitive Security Institute*. (11/2022).

Gutzwiller, R. S. (2022, virtual presentation). Human Factors in Cybersecurity. Invited seminar to the *Psychology department at Michigan Technical University*. (10/2022).

Gutzwiller, R. S. (2022, virtual presentation). Dancing with Algorithms: Interactive Machine Learning for C2. Invited presentation at the *Boeing HFE Enterprise Community of Excellence (CoE) Meeting* (08/2022)

Gutzwiller, R. S. (2022, virtual presentation). Are cyber attackers thinking fast and slow? Invited presentation at the *IEEE Euro S&P Active Defense and Deception Workshop, Italy.* (06-2022).

Gutzwiller, R. S. (2021, virtual presentation). Human Factors in Automating Cyber Defenses. Invited panelist at the *International Joint Conference on Artificial Intelligence Workshop on Autonomous Cyber Defense*. (08/2021).

Gutzwiller, R. S. (2021, virtual presentation). Why would you incorporate humans in machine learning? Invited talk to Pacific Northwest National Labs (PNNL), part of the Mathematics for Artificial Reasoning in Science colloquium series.

Gutzwiller, R. S. (2020, virtual presentation). Dancing with algorithms: integrating humans and machine learning. Invited talk during *ASU Innovation Quarter,* Human-AI-Robot Teaming. (12/2022)

Gutzwiller, R. S. (2020; virtual presentation). Interactive machine learning: A novel approach to human-machine teaming. Invited talk at *General Dynamics Corporation* (04-2020), Phoenix, AZ, USA.

Gutzwiller, R. S. (2020; *invited, cancelled for COVID-19*). Interactive machine learning; A novel approach to human-machine teaming. Invited virtual talk to *Facebook*.

Gutzwiller, R. S. (2020; *invited, cancelled for COVID-19*). Interactive machine learning: A novel approach to human-machine teaming. Invited talk at *Massachusetts Institute of Technology Lincoln Laboratories (MIT)*, 04-2020, Boston, MA, USA.

Gutzwiller, R. S. (2020; *invited*, *cancelled due to COVID-19*). Interactive machine learning: A novel approach to human-machine teaming. Invited talk at *Machine Learning Day*, Arizona State University, West Campus (04-2020), Phoenix, AZ, USA.

Lafon, D., **Gutzwiller, R. S.,** & Ferguson-Walter, K. (2020). Cyber Psychology aids National Security (Panel). Chaired by McGuire, M., Troyer, L., & Fugate, S. *HICSS-53 Symposium.* Maui, Hawaii, USA.

Gutzwiller, R. S. (2019). Invited talk at National Science Foundation (NSF) *Workshop for Psychology and Cybersecurity Experts,* held in Washington, DC, USA.

Gutzwiller, R. S. (2019). Humans, AI and machine learning: Concerns and a way forward. Invited Panel presentation at *Naval Applications of Machine Learning* (NAML) conference, held by U.S. Navy, San Diego, CA, USA.

Gutzwiller, R. S. (2019). Interdependence in cyberspace: A view of automation as applied to cybersecurity. Invited Panel presentation at *Cyber TRAINsitions Workshop*, held by the University of Central Florida, Orlando, FL, USA.

Gutzwiller, R. S. (2018). Focus on the human! Human factors science will help develop automated and autonomous cyber operations. Presented at the *Autonomous Cyber Operations Workshop*, Maryland, USA.

Gutzwiller, R. S. (2018). Predicting attention to tasks in complex systems. Department of Psychology & Neuroscience, *Baylor University*, Waco, TX, USA.

Gutzwiller, R. S. (2018). The human role in cyber defense. Webinar series “Human Factors Applications to Cybersecurity”, invited and sponsored by the *Human Factors and Ergonomics Society.*

Gutzwiller, R. S. (2018). Attention to tasks in complex systems**.** Human Systems Engineering program, *Arizona State University,* Mesa, AZ, USA.

Gutzwiller, R. S. (2017). What do humans mean for autonomy in the Navy? *Air Force Institute of Technology*, Dayton, OH, USA.

Gutzwiller, R. S. (2015). Cognition in the wild. Department of Psychology, *San Jose State University*, San Jose, CA, USA.

Gutzwiller, R. S. (2015). Human factors of cyber network defense. Navy’s *Human-Systems Integration Working Group*, online presentation.

Gutzwiller, R. S. (2015). A computational model of multi-task switching choice under cognitive load: STOM. *Department of Defense Human-Systems Integration Technical Advisory Group,* online presentation.

Gutzwiller, R. S., & Clegg, B. A. (2009). The generation effect on route memorization in a navigational task. *Rocky Mountain Psychological Association Conference*, Albuquerque, NM, USA.

Poster Presentations

(italics indicate formal mentees and students)

Gutzwiller, R. S. (2019). The Applied Attention Research lab at Arizona State University. Lab poster presented at the *Human Factors and Ergonomics Society Annual Meeting.*

Williams, S., & **Gutzwiller, R. S.** (2018). Battlespace management aids experimentation and development. Presented at the *Navy and Marine Corps. Naval Innovative Science and Engineering Section 219 Technical Exchange Meeting,* Dahlgren, VA.

Lukos, J., Weigand, K., **Gutzwiller, R.S.**, & Fugate, S. (2018). Ambient activity monitors (AAMs) to display hidden computer system information. *NDIA*

Wanic, L., & **Gutzwiller, R. S.** (2017). Human centered design issues for cyber defense. *Navy Research Enterprise Internship Program review,* Space and Naval Warfare Systems Center Pacific.

Gutzwiller, R. S. (2016). Characterizing human limitations and impediments to cyber situation awareness. *Presented at the Navy and Marine Corps. Naval Innovative Science and Engineering Section 219 Expo,* Pentagon, Washington, D.C.

Hunt, S., **Gutzwiller, R. S.**, Rousseau, D., & Iden, R. (2015). Characterization of the human limitations and impediments for cyber situation awareness. *International Applied Human Factors and Ergonomics (AHFE) Meeting.*

Weeks^, V., **Gutzwiller, R. S.**, & Clegg, B. A. (2013). Retraining with errorless learning for driver education. Poster presented at the *Celebrate Undergraduate Research and Creativity (CURC) conference.* **^**Victor received a College Honors award.

Gutzwiller, R. S., & Lange, D. S. (2012). Integration of machine learning and human factors for unmanned system teams. *Navy Research Enterprise Internship Program review,* Space and Naval Warfare Systems Center Pacific.

Gutzwiller, R. S., & Clegg, B. A. (2011). Situation awareness and training influence multiple vehicle control. *Association for Psychological Sciences Annual Meeting*, Washington, D.C.

Suozzi, K., **Gutzwiller, R. S**., & Clegg, B. A. (2010). Implicit sequence learning with direct stimulus-response mapping. *National Science Foundation Research Experience for Undergraduates (REU) program,* Colorado State University, Fort Collins, CO.

Huckleberry, K., **Gutzwiller, R. S**., Mong, H., & Clegg, B. A. (2009). Explicit knowledge results from incidental learning in the implicit change detection task. *National Science Foundation Research Experience for Undergraduates (REU) program,* Colorado State University, Fort Collins, CO.

Press Coverage

User-centered Design in Acquisition

[Make User-centered Design a Cornerstone of Navy Systems – Published in *Naval Proceedings*] https://www.usni.org/magazines/proceedings/2018-10/make-user-centered-design-cornerstone-navy-systems

Virtual Reality for the Military

[Virtual Reality Really Does Benefit the Military – Published in *Future Force*] http://futureforce.navylive.dodlive.mil/2018/05/not-just-a-fad-virtual-reality-really-does-benefit-the-military/

Studying the Human and Cybersecurity

[Partner to Study Cybersecurity Tools and Training] https://www.federallabs.org/news/ssc-pacific-national-university-partner-to-study-cybersecurity-tools-and-training

Human Automation Interaction with Swarms

[Inside Navy's Secret Swarm Robot Experiment – Published in *Defense One*] http://www.defenseone.com/technology/2014/10/inside-navys-secret-swarm-robot-experiment/95813/

Teaching & Mentoring Experience

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2019- **Instructor of Record,** Arizona State University, Mesa, AZ, USA

HSE 101: Human Systems Engineering (online) [Spring '23]

- Taught an introductory course in psychology and human factors as part of the early human systems engineering experience. The course is delivered fully online and focuses on modules in psychology, including its history, theories, and application with a particular focus on cognition. [Spring 2023]

HSE 254: Human Systems Integration [Fall 20; 21; 22; Spring, Fall 23; Spring 24]

- Developed and taught an undergraduate course in human systems integration. The course focuses on the history and application of modern HSI efforts across military and industrial applications, using current HSI standards and references.

HSE 598: Applied Attention Theory [Spring, Fall, 19; Spring 20, 21, 22, 24]

- Developed and taught a graduate seminar in *Applied Attention Theory*. The course uniquely focuses on the dynamic links between studying the nature of attention in the lab, and applying this understanding to complex environments and engineering efforts, thereby improving safety and performance.

HSE 494: [Spring '20, 21, 22, 24]

- Undergraduate section of the 598 course on Applied Attention Theory

2011-2012 **Instructor of Record**, Colorado State University, Fort Collins, CO, USA

- Taught a semester of an undergraduate, stand-alone lab in Basic Cognitive Psychology. Delivered lecture material, leading students to conduct hands-on replications of well-known studies. Students learned how to write each of the major sections of a publication culminating in two full papers: one based on a replication, and one based on an idea of their own.
- Taught a semester of an undergraduate, stand-alone lab in Applied Cognitive Psychology similar in structure to the Basic lab. The focus was on applications of cognitive psychology, such as attention and distraction in driving. Incorporated driving-simulator and eye-tracking systems into lecture and hands-on content.

2008-2014 **Teaching Assistant**, Colorado State University, Fort Collins, CO, USA

Graduate teaching assistant for psychology courses, most exceeding 50 students, including *Introductory Psychology, Research Methods in Psychology, Cognitive Psychology, Learning & Memory, Mind Brain & Behavior,* and *Sensation & Perception*

- Prepared and delivered several guest lectures in each course.
- Responsible for grading assignments and exams.
- Facilitated student learning through in-person interactions, holding office hours and ad-hoc discussions and instruction.
- Recruited and mentored students from these courses in lab research.

Mentoring

(* chair , ‡ completed)

Dissertations Chaired or Committee Membership

- Paul Sipe – HFE in Policing *Spring 2024*
- * Raghav Bhatt – Medical HFE applications *Spring 2025*
- * Christina Lewis – Multitasking and errors *Spring 2025*
- Chris Lieber – Teaming and workload *Fall 2024*
- David Stinson – Team multitasking *Spring 2024*
- Glenn Lematta – Human machine teaming. *Fall 2024*
- * ‡ Chelsea Johnson – Sunk Cost in Cybersecurity. *Summer 2022*
- * ‡ David Wallace – Design & test of a medical apparatus. *Spring 2021*
- ‡ Verica Buchanan – AI and human factors *Fall 2023*
- ‡ Craig Johnson – Team workload *Fall 2023*
- ‡ Hansol Rheem – Exploration of methods of bias detection. *Fall 2019*
- ‡ Mollie McGuire (Claremont University) – Prospective memory, stress and unmanned system command and control. *Fall 2016*

Thesis Chaired or Committee Membership

- Stuart Rice *Spring 2024*
- * Colby Merkt *Fall 2024*
- ‡ Cameron Kelly *Spring 2023*
- * ‡ Morgan McAlphin *Spring 2023*
- * ‡ Hannah Dicksion *(Undergrad Honors Thesis)* *Spring 2023*
- ‡ Matthew Willett *Spring 2023*
- ‡ Jeska Clark *Spring 2023*
- ‡ Aaron Rios *Spring 2022*
- * ‡ Christina Lewis *Fall 2021*
- * ‡ Garrett Zabala *Summer 2020*
- * ‡ Jimin (Joy) Kim *Spring 2021*
- ‡ Shawaiz Bhatti *Summer 2021*
- ‡ Akuadasuo Ezenyilimba *Spring 2021*
- ‡ Christopher Lieber *Fall 2020*
- ‡ Craig Johnson *Fall 2020*
- ‡ Earl Radina *Spring 2019*
- ‡ Alyssa Thompson *Spring 2019*

2018- **Mentoring @ ASU (⁺) = 19 PhD or Post-doc, (^) = 16 Masters Students, (#) = 3 Undergrads**

- ⁺ David Stinson – Dissertation committee member.
- ⁺ Verica Buchanan – Dissertation committee member. Mentorship and collaborative work on cybersecurity testbeds. **Graduated 2023**
- ⁺ Christina Lewis – Thesis chair, dissertation chair. Mentorship for work in error commission in multitasking and attention, collaborative work on cognitive tunneling lit review.

- + Raghav Bhat – Dissertation chair, mentorship, and project work on cybersecurity, mis/disinformation, and cognitive tunneling from MS to PHD level.
- + Christopher Lieber – Thesis committee member, lit review committee member.
- + Craig Johnson – Thesis, lit review and dissertation committee member, mentor for SMART scholarship, collaborating on literature review for team workload. **Graduated 2023**
- + Rezvan Yousefi – mentor for research experience on funded work
- + Jessica Lee – mentor for research experience on funded work
- + Apoorva Verma (Psychology PhD student) – mentor on funded work
- + ^ Shawaiz Bhatti – Thesis committee member. Mentorship on thesis topics and execution, leadership, job search, and publications. Admitted to ASU PhD program 2021.
- # ^ Morgan McAlphin, special topics FURI application project on modality in driving alerts for advanced driving safety systems; continued mentor and chair of MS thesis committee. **Graduated 2023**
- ^ Jimmy Lee – Thesis member for HSE MS
- ^ Cameron Kelly – Thesis co-chair for HSE MS **Graduated 2023**
- ^ Iman Maknojia – Research mentor/advisor for HSE MS, funded work
- ^ Reece Brooks – Research mentor and portfolio chair
- ^ Noella Mikanda – mentor for research experience on funded work, formal mentor/portfolio chair. **Graduated 2023**
- ^ Madison Gilbert – mentor for research experience on funded work, formal mentor/portfolio chair. **Graduated 2023**
- ^ Peioneti Lam – mentor/portfolio chair. **Graduated 2022.**
- ^ Matthew Willett – Thesis committee member. **Graduated 2023**, entered PHD program
- # Hannah Dicksion – Undergraduate Barrett Honor's thesis chair. **Graduated 2023**
- + Chelsea Johnson – Dissertation chair. Mentorship and committee chair for dissertation on attention, and cognitive biases in cybersecurity. **Graduated 2022.**
- ^ RJ Curley – mentor for research experience on funded work. **Graduated 2022.**
- + Hansol Rheem – Dissertation committee membership, research mentor. Graduated 2019, **transitioned to post-doc** at ASU until 08/2021].
- + David Wallace – Dissertation chair; Mentorship on career advice, research projects and networking. **Graduated 2021.**
- ^ Jimin (Joy) Kim – Thesis chair. Mentorship on automation, multitasking, and human machine teaming. **Graduated 2021.**
- ^ Akuadasuo Ezenyilimba – Thesis committee member, mentorship on research, collaboration on multitasking experiments. **Graduated 2021.**
- ^ Deepika Thamizhvanan – Program mentorship.
- ^ Garrett Zabala – Thesis chair. Mentorship on automation, multitasking, attention modeling. **Graduated 2020.**

- ^ Mathew Dusharm – Program mentoring, mentorship on career in the government. **Graduated 2019.**
- # Marcquette Johnson, undergraduate special topics research project on mindfulness and stress induction in teleconferencing.
- # Allysa Hayden – Mentorship on research and internships
- +Jessika (Curry) Smith (Baylor University) – Mentorship on research methods, statistics, and literature reviews. **Graduated 2021**
- + Megan Nyre-Yu (Purdue University) – Mentorship and collaboration on cognitive task analysis and mental model exploration of cyber defense analysts in Incident Response Teams. **Graduated 2019.**
- + Melissa Sheldrup (George Mason University) – Mentorship and review of dissertation project on training with automation support. **Graduated 2019.**
- + Kimberly Ferguson-Walter (University of Maryland) – Mentorship on human subjects research, statistics, and psychology. **Graduated 2019**
- + Sarah Ligda – Member of lit review committee.
- + Glenn Lematta – Dissertation committee member. Mentoring on thesis project, collaborating on cyber game development and team workload.
- + Joe Gervais – Dissertation chair. Mentorship for dissertation, and work on cybersecurity situation awareness. **Left program 08/2020.**

2014-2018 Mentoring at Space and Naval Warfare Systems Center (SPAWAR)

- Josiah Bryan – Mentor over a three month tour in the user-centered design and engineering branch, with a cyber project emphasis.
- Emmanuel Orozco – Mentor over a three-month tour as a software and virtual machine developer for a human factors cyber testbed.
- Liz Wanic (*Naval Postgraduate School*; now at *US Federal Reserve*) – Mentor during her internship at SPAWAR in cyberspace application design and human factors.
- Anu Venkatesh (*University of California – Riverside;* now at NIWC) – Advisor for internship and career development in the Science, Mathematics and Research for Transformation (SMART) Scholarship program.

2008- 2014 Mentoring at Colorado State University

- Supervised 5 to 15 undergraduate research assistants per semester on my projects and others in a human performance lab, with approximately 20-40% newly recruited RAs each year.
- Trained all research assistants in testing projects, protocols, human subjects protection, and data storage procedures. Each RA was also mentored on a research project they performed as part of their undergraduate thesis.
- Mentored two undergraduate honors thesis projects.
- Supervised four paid assistants work to assist in our grant research for ONR and NASA, and mentored them into contributing to conference papers and poster presentations.
- Served as the primary mentor for two paid internships sponsored by the National Science Foundation (NSF) Research Experience for Undergraduates (REU) program at Colorado State University.

Service

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Chair, Council of Technical Groups of the Human Factors and Ergonomics Society (HFES) (chair-elect 2022-2023, chair 2023-)

Establishing Chair, *Cybersecurity Technical Group* of the Human Factors and Ergonomics Society (HFES) (2019-2022)

- Established and led the creation of the Cybersecurity TG for HFES
- Developed and Led Cybersecurity ERGOX workshop 2020, panelists, and talks on cybersecurity and the human factor. Solicited experts, topic areas, and workshop theme.
- Developed and Led second Cybersecurity ERGOX workshop 2021.
- Co-Developed and Co-Led third Cybersecurity ERGOX workshop 2022.
- Contributed to Council of Technical Groups leadership projects to review HFES guidelines and recommendations.
- Contributed to the Standards Task Force by investigating standards use in human factors work in cybersecurity domains.
- Oversaw donations made to the technical group >$5,000, 2019-2022.
- Managed membership, represented members at Society level, leading TG elections and nominations.
- Established virtual speaker series for the TG

Prestigious Scholarship Reviewer

Department of Defense SMART Scholarship (2020- 2023)

Appointed Reviewer - Human Factors and Ergonomics Society (HFES) special award categories

** Jerome H. Ely Best Journal Article Award Committee (2018 reviewer)*

** Alphonse Chapanis Best Student Paper Award (2021, '22, '23 reviewer)*

Journal Reviewer

Appetite
Acta Psychologia
Computational Brain & Behavior
Computers & Security
Digital Threats: Research and Practice
Ergonomics
Frontiers in Virtual Reality
IEEE: Presence
IEEE: Systems
IEEE: Systems, Man, & Cybernetics (SMC)
IEEE: Transactions on Human-Machine Systems (THMS)
International Journal of Aerospace Psychology
International Journal of Human-Computer Interaction
International Journal of Human-Computer Studies
International Journal of Social Robotics
*Human Factors Journal (**preferred reviewer, path to editorship)
Human Performance
Journal of Applied Research in Memory & Cognition
Journal of Cognitive Engineering & Decision Making
Journal of Cyber Security Technology

Journal of Experimental Psychology: Applied
Memory & Cognition
Robotics and Computer-Integrated Manufacturing
Traffic Psychology & Behavior

Conference Reviewer

Applied Human Factors and Ergonomics (AHFE)
Cognitive Science Society (CSS)
Computer-Human Interaction (CHI)
Human-Computer Interaction International (HCII)
Human Factors and Ergonomics Society (HFES)
Hawaii International Conference on System Sciences (HICSS)
IEEE Systems, Man & Cybernetics (SMC)
IEEE CogSIMA

Grant Reviewer

DARPA (Defense Advanced Research Projects Agency)
ONR Global (Office of Naval Research)

Committee Member of the National Academies of Sciences, Engineering & Medicine's *Cybersecurity Workforce of the Federal Aviation Administration* study commissioned in 2020, released 2021

Invited Contributor, DARPA Information Science and Technology (ISAT) panel, "AI Leveraging InterspeciEs iN Teams (ALIEN-Teams)" W*orkshop. March 9, 2021*

Program Committee, *GameSec 2021* and *GameSec 2023* conference track "Behavioral Decisions Game Theory". Review and decisions about conference submissions on using games to research security practices in cyber alongside human decision-making.

Institutional Review Board (IRB) Member, Voting position held 2016 – 2018. *Space and Naval Warfare Systems Center (SPAWAR) Pacific*, *U.S. Navy*.

Awards

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- **Lightning Bolt Innovation Team Award**, for project work on DAISEY, 2019, Naval Information Warfare Center (U.S. Navy Research Lab).
- **Marc Resnick Award** for the best paper in the Computer Systems/Internet Technical Track at the Human Factors and Ergonomics Society Annual Conference, 2018, Human Factors and Ergonomics Society.

- **Exemplary Achievement Award** in recognition for achievements that have been of high value and benefit to the organization, 2018, SPAWAR (U.S. Navy Research Lab).
- **Jerome H. Ely Award** for the best paper in the Human Factors Journal, 2017, Human Factors and Ergonomics Society.
- **Distinguished Achievement in Leadership Award**, 2017, Command and Control Department, SPAWAR (U.S. Navy Research Lab).
- **David P. McCabe Excellence in Research Award**, 2014, Colorado State University.
- **Science Mathematics and Research for Transformation (SMART) Scholarship Award**, 2012-2014, U.S. Department of Defense.
- **Naval Research Enterprise Internship Award**, 2012, Office of Naval Research.
- **Naval Research Enterprise Internship Award**, 2011, Office of Naval Research.
- **Graduate Student Travel Award** to present a paper at American Psychological Society, Washington, D.C., 2011, Colorado State University.
- **Graduate Fellowship**, 2008-2012, Department of Psychology, Colorado State University.
- **President's Baylor Scholarship**, 2004, Baylor University.

Skills

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- Experimental design and implementation for human subject experiments in cognition and applied human factors engineering.
- Advanced statistical methods and analyses. Expert in *SPSS* software.
- Cognitive modeling and discrete event simulation using *IMPRINT*.
- *Eprime* psychological experimentation software.
- *Multi-Attribute Task Battery* (MATB II) multitasking simulation software.
- *AutoCAMS* software simulation of space capsule air management systems.
- *DriveSafety*, *HyperDrive,* high-fidelity driving simulation software.
- *MORAE* user experience recording and analysis software.
- User Experience (UX) and User Research experience performing goal-directed task analysis (GDTA), cognitive task analysis (CTA), knowledge elicitation techniques, session moderating, system usability, and heuristic reviews.

Professional References

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Dr. Benjamin A. CLEGG
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Montana State University
Department of Psychology
benjamin.clegg@montana.edu

Dr. Sunny J. FUGATE, *SSTM*
Senior Scientific & Technical Manager (*SSTM*) for Cyber Warfare
Naval Information Warfare Center Pacific
sunny.j.fugate.civ@us.navy.mil

Dr. Kimberly J. FERGUSON-WALTER
Computer Scientist, DOD
IARPA Program Manager
kimberly.ferguson-walter@iarpa.gov

Dr. Douglas S. LANGE
Computer Scientist, S&T Lead
Naval Information Warfare Center Pacific
douglas.s.lange2.civ@us.navy.mil

Dr. Jamie R. LUKOS, *ST*
Senior Technologist (*ST*) for Cognitive and Decision Science for the US Navy
Naval Information Warfare Center Pacific
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Dr. John D. REEDER
Senior Computer Scientist
Naval Information Warfare Center Pacific
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Dr. Nate TENHUNDFELD
Associate Professor of Applied Human Factors, Interim Department Chair
University of Alabama Huntsville
Department of Psychology
nlt0006@uah.edu

Dr. Karl Van Orden, *CDR (ret), ST (ret)*
Senior Technologist, Decision Science
United States Navy
karlvanorden@gmail.com

Dr. Christopher D. WICKENS
Professor Emeritus, *University of Illinois Urbana-Champaign*
Affiliate Faculty *Colorado State University*
Department of Psychology
chris.wickens@colostate.edu