

Colleen Patton

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<https://sites.google.com/view/chatlab>

Education

- 2023** **PhD**, Cognitive Psychology
 Colorado State University, Fort Collins, CO
 Advisor: Dr. Benjamin Clegg ; Co-advisor: Dr. Christopher Wickens
 Dissertation Title: *The Influence of Trust, Self-Confidence, and Task Difficulty on Automation Use*
- 2021** **M.S.**, Cognitive Psychology
 Colorado State University, Fort Collins, CO
 Advisor: Dr. Benjamin Clegg ; Co-advisor: Dr. Christopher Wickens
 Thesis Title: *Time Sharing Performance of Egocentric and Allocentric Frames of Reference as an Indicator of Resource Pool*
- 2019** **B.A.**, Psychology
 University of Maryland, College Park, MD

Research Interests

My research broadly focuses on questions of decision-making under uncertainty in the context of human-automation interaction. For example, I have investigated how automation can support humans in the detection of intentions from spatial movements alone. I also seek to understand the factors involved in people's decision to use automation, particularly in contexts containing uncertain decisions. As automation, artificial intelligence, and machine learning applications grow—especially in military contexts—I look to understand how these tools can be utilized in human interaction to produce productive solutions to real-world problems.

Keywords: human factors, automation, decision-making, uncertainty, attention

Funding

- 2022** Human Factors and Ergonomics Society Perception and Performance Technical Group Student Funding Grant (\$500)
- 2022** Naval Research Enterprise Intern Program (\$11,000)
- 2021** Naval Research Enterprise Intern Program (\$12,100)
- 2018** Army Educational Outreach Program Technical Symposia Travel Award (\$500)

Publications

Underline denotes graduate student at time of work

*Denotes undergraduate student at time of work

Accepted

Patton, C. E., Wickens, C. D., Clegg, B. A., Smith, C. A. P., (in press). The Influence of Set Size in a Dynamic Decision-Making Task. *AHFE 2024 Conference Proceedings Edited Springer Books*.

Published

Patton, C. E., & Wickens, C. D. (2024). The relationship of trust and dependence. *Ergonomics*, 1-17. doi.org/10.1080/00140139.2024.2342436

Patton, C. E., Wickens, C. D., Clegg, B. A., Smith, C. A. P., *Noble., K. N., (2023). Supporting detection of hostile intentions: Automated assistance in a dynamic decision making context. *Cognitive Research: Principles and Implications [Automation and Human Cognition]*.

Patton, C. E., (2023). Automation Use: The Roles of Self-Confidence, Trust, and Workload. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 67(1)

Patton, C. E., Warden, A. C., Pharmer, R. L., (2023). I spy differences in system reliability. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 67(1)

Patton, C. E., (2022). A multiple resource examination of time sharing performance for egocentric and allocentric frames of reference. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 66(1).

***winner of Best Student Paper for Performance and Perception Technical Group**

*Connor, Z., Wickens, C. D., **Patton, C. E.,** (2022). The Proximity Compatibility Principle and its applications to human perception of graphic displays. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 66(1).

Patton, C. E., Wickens, C. D., *Noble, K. N., Smith, C. A. P., Clegg, B. A., (2022). How history trails and set size influence the detection of hostile intentions. *Cognitive Research: Principles and Implications*. 7(1), 1-12.

Patton, C. E., Wickens, C. D., Smith, C. A. P., Clegg, B. A., (2021). History trails assist in detection of hostile intentions. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 65(1), 581-585.

***winner of Best Student Paper for Performance and Perception Technical Group**

Patton, C., E., Wickens, C., D., *Noble, K., N., Clegg, B., A., Smith, C. A. P., (2021). Rendezvous under temporal uncertainty. *Human Factors*. doi.org/10.1177/00187208211026112.

Patton, C. E., Wickens, C. D., Clegg, B. A., Smith (2021). Detection of hostile intentions. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 65(1).

Patton, C., E., Wickens, C., D., Smith, C. A. P., Clegg, B., A., (2021). Detection of hostile intent by spatial movements. *Human Factors*. https://doi.org/10.1177/00187208211015022

Patton, C. E., Wickens, C. D., Clegg, B. A., Smith, C. A. P., Zhou, X. (2020). The planning bias in the spatial rendezvous: Partial compensation for temporal uncertainty. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. 64(1), 298-302.

- Johnston, J., Napier, S., Burford, C., Henry, S., Ross, B., **Patton, C.**, (2018). A test protocol for advancing behavioral modeling and simulation in the Army Soldier Systems Engineering Architecture. *AHFE 2018 Conference Proceedings Edited Springer Books*.
- Patton, C.**, Napier, S. (2016). Emotion regulation and coping in infantry Soldiers. *Compendium of Abstracts, ARL Summer Student Research Symposium. 2.* ARL-TM2016a.
Jun. http://www.arl.army.mil/www/default.cfm?technical_report=7912

Presentations and Posters

† indicates presenting author, if different from first author

Underline denotes graduate student at time of work

*Denotes undergraduate student at time of work

- Patton, C. E.**, (in press). *The Impact of Operator Perceptions on Automation Use*. [Conference Session and Abstract]. Accepted to ASPIRE: The 68th Annual Meeting of the Human Factors and Ergonomics Society. Phoenix, AZ.
- Patton, C. E.**, Warden, A. C., Pharmer, R. L.†, (2023). *I spy differences in system reliability*. [Conference session]. Presented at the Human Factors and Ergonomics Society 67th Annual Meeting. Washington, DC.
- Patton, C. E.**, (2023). *Automation Use: The Roles of Self-Confidence, Trust, and Workload*. [Conference session]. Presented at the Human Factors and Ergonomics Society 67th Annual Meeting. Washington, DC.
- Patton, C. E.**, (2022). *A multiple resource examination of time sharing performance for egocentric and allocentric frames of reference*. [Conference session]. Presented at the Human Factors and Ergonomics Society 66th Annual Meeting. Atlanta, GA.
- *Connor, Z. A., **Patton, C. E.**, Wickens, C. D. †, (2022). *Human Perception of Graphic Displays Using the Proximity Compatibility Principle*. [Poster]. Presented at American Psychological Association Annual Conference.
- *Sibert C., Caglar, T., **Patton, C. E.**, Clegg, B. A., Blanchard, N., (2022). *Hostile Ship Project*. [Poster]. Presented at Celebrating Undergraduate Research and Creativity at Colorado State University.
- Patton, C. E.**, Wickens, C. D., Smith, C. A. P., Clegg, B. A., (2021). *History Trails Assist in the Detection of Hostile Intentions*. [Conference session]. Presented at Human Factors and Ergonomics Society 65th Annual Meeting. Baltimore, MD.
- Patton, C. E.**, Wickens, C. D., Clegg, B. A., Smith, C. A. P., Zhou, X. (2020). *The planning bias in the spatial rendezvous: Partial compensation for temporal uncertainty*. [Conference session]. Presented at Human Factors and Ergonomics Society 64th Annual Meeting.
- Patton, C.**, Napier, S., Johnston, J. (2018). *Improving accuracy of human behavior modeling*. [Poster]. Presented at Army Science and Technology Symposium.
- Patton, C.**, Napier, S., Johnston, J., & Henry, S. (2017). *Execution and analysis working group improving human behavior modeling*. [Conference Session]. Presented at SSEA IPR.

Awards

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| 2024 | CHASS Writing Retreat (NC State University) |
| 2022 | Best Student Paper for the Perception and Performance Technical Group (\$500) |

- 2021** Best Student Paper for the Perception and Performance Technical Group (\$500)
- 2021** Alphonse Chapanis Best Student Paper Award Finalist (Human Factors and Ergonomics Society)

Student Awards

All awards were conferred upon students under my direct mentorship.

- 2024** NCSU OUR Summer Research Assistantship – Jewel Padilla (Funding: \$1650)

Invited Talks

- Patton, C. E.** (May, 2024). *Perceptual Influences on the Choice to Use Automation*. Colloquium presentation at Humboldt-Universität zu Berlin.
- Patton, C. E.**, (April, 2024). Panelist for Human Factors and Ergonomics Women’s Affinity Group: *Early Career Panel* (With Mengyao Li, Eileen Roesler, & Oshin Tyagi).
- Patton, C. E.** (February, 2022) *Graduate School 101*. Talk presented to a first-year seminar at Colorado State University.

Media Coverage

- Garbarine, R. (2024, March 28). *What are the risks and rewards of autonomous vehicles?*. Humanities and Social Sciences News. <https://chass.ncsu.edu/news/2024/03/28/what-are-the-risks-and-rewards-of-autonomous-vehicles/>

Teaching Experience

Courses as the Instructor of Record

North Carolina State University

Undergraduate Courses

- PSY340: Human Factors (4.4/5 average rating)
 - 2023 – Present: ~ 45 students per section
- PSY499: Undergraduate Research
 - 2023 – Present: 3-5 students per semester

Colorado State University

- Cognitive Psychology Laboratory (4.81/5 overall rating)
 - 2021: ~20 students per section
- Human Factors and Engineering Psychology
 - 2021: Online, ~ 12 students

Guest Lectures

- Fall 2022 Science of Learning: Testing Effect

Workshops

- Fall 2022 Best Practices in Teaching at CSU: Active Learning

Fall 2022

Best Practices in Teaching at CSU: Create Assignments

Professional Experience

2023-Present Assistant Professor, Department of Psychology, Human Factors and Applied Cognition Program, North Carolina State University, Raleigh, NC

2019-2023 Graduate Research Assistant, Department of Psychology, Cognitive Psychology Program, Colorado State University, Fort Collins, CO

2021/2022 Research Assistant, Naval Research Enterprise Internship Program, Naval Research Laboratory, Washington D.C.

2019-2019 Laboratory Manager, Language and Music Cognition Laboratory, Department of Psychology, University of Maryland, College Park MD

2017-2019 Research Assistant, Language and Music Cognition Laboratory, Department of Psychology, University of Maryland, College Park MD

2016-2019 Research Intern, Human and Engineering Directorate, Army Research Laboratory, Aberdeen Proving Ground, MD

Service

External

2024 Communications Chair, Performance and Perception Technical Group, Human Factors and Ergonomics Society

2023 Committee Member, Chapanis Best Student Paper Award Committee, Human Factors and Ergonomics Society

Internal

2024 Reviewer, CHASS Undergraduate Student Scholarships

2020-2023 Director, Mentoring Undergraduate Students to Graduate School Success (MUGSS)

2022 Graduate Admissions Committee Member, Cognitive Psychology PhD Program at CSU

Professional Development

Argumentation, Communication, and Critical Thinking: Teaching Durable Skills to Prepare Our Students for Success in an AI-World (March, 2024). *Attendee*.

Mentoring Best Practices for Equity and Inclusion (May, 2022). *Director and Host*.

Uncovering Bias Course (March, 2022). *Attendee*.

Diversity, Equity and Inclusions Foundations Course (February, 2022). *Attendee*.

Professional Service

Professional Affiliations

Human Factors and Ergonomics Society Member

American Psychological Association Division 21 Member

Reviewing

Human Factors and Ergonomics Society Annual Meeting

Human Factors Journal

Cognitive Principles: Research and Implications

International Journal of Industrial Ergonomics

Journal of Experimental Psychology: Applied