Matthew J. Scalia

Human Systems Engineer | Engineering Psychologist | Human Factors Professional | User Experience Researcher

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SUMMARY

Human factors professional and AI researcher with 10+ years of experience designing and evaluating user-centered products and AI systems, specializing in human-AI teaming, trust, and human-in-the-loop processes to improve performance, coordination, trust calibration, and ethical and compliance risk management in AI-driven products and outcomes. Seeking full-time positions June 2026.

EDUCATION

Ph.D. Human Systems Engineering   Expected May 2026
Ph.D. Certificate Complex Adaptive Systems Science
Arizona State University, Tempe, AZ   4.19 GPA (Ph.D.) and 4.20 GPA (Ph.D. Certificate)

M.S. Engineering Psychology   August 2022
Georgia Institute of Technology, Atlanta, GA   3.78 GPA

B.S. Psychology; Behavioral Neuroscience Minor and Green Engineering Scholar   May 2018
The Ohio State University, Columbus, OH   3.18 GPA

RELEVANT PROFESSIONAL EXPERIENCE

Center for Human, Artificial Intelligence, and Robot Teaming (CHART), Mesa, AZ: Ph.D. Research Assistant   Aug. 2022 – Present
Supports 3 concurrent projects by driving project priorities, deriving research-driven insights, and supporting user-centric products
- Collaborates on projects budgeted at $100K – $4.1M spanning 6 months – 4 years, delivered on time and within budget
- Identifies normative and non-normative design principles across sectors through SME interviews and thematic analysis
- Performs field studies to collect biobehavioral and performance data to develop real-time measurement systems
- Designs, runs, analyzes, and reports on experiments related to trust in human-AI teams and multiteam systems
- Leads project meetings for cross-functional teams across DoD, industry, and academic partners; reports to the CHART director
- Hired, oversaw, and trained 22 master's and 16 undergraduate research assistants, and trained 3 Ph.D. research assistants

Oak Ridge Institute for Science and Education, Dayton, OH: Research Fellow   May 2024 – July 2024
Designed and developed an AI agent for use in controlled experiments examining trust, transparency, and search coordination strategies with the Team Enhancement, Assessment, and Measurement Lab at the Air Force Research Laboratory
- Applied dynamical systems and advanced statistics to monitor teamwork, detect breakdowns, and support team performance
- Initiated development of an AI agent that predicts when human teammates need assistance, prompts adjustments to search coordination strategies, and provides feedback to improve search performance
- Conducted semantic analysis and NLP to create and tokenize training data, improving the AI model's predictive accuracy

RELEVANT PROJECTS

Trust and Communication's Multilevel and Mediated Relationship with Performance in Human-AI Teams   Aug. 2022 – Mar. 2024
- Conducted multilevel mediation, growth curve, and moderation models in R to examine how communication and trust shape individual performance, identifying role- and team-type effects and informing human and AI communication strategies and explicit teamwork skill requirements to improve trust calibration in human-AI teams

Ergonomic Moka Pot: A User Experience Research Approach   Jan. 2023 – May 2023
- Led mixed-methods UX research including observation, co-design, PCA task analysis, personas, journey mapping, prototyping, and usability testing to identify ergonomic issues and deliver a redesigned moka pot prototype with improved usability and safety

RELEVANT RESEARCH AND TECHNICAL SKILLS

Research Design and Practices: Experimental and quasi-experimental design; research proposals; study protocols; survey creation; field, case, usability, summative, formative, and simulated-use studies; validation testing; heuristic evaluations; and reporting
Quantitative Methods: t-test, ANOVA, regression, multivariate statistics, structural equation modeling, multilevel modeling, growth modeling, dynamical systems methodology, real-time data analysis, signal detection, biometrics, and data visualization
Qualitative Methods: User Experience (UX) research and methodology; cognitive work analysis; task and KSAO analysis; interviewing; focus group facilitation; observational studies; contextual inquiry; literature and systematic reviews; and thematic analysis
Data Analysis Languages and Software: R, Python, MPlus, SPSS, GPower, JASP, Dedoose, LIWC, and Excel
Programming Languages: MATLAB, R, Python, UML, SysML, LaTeX, C++, Arduino C/C++, HTML, CSS, Visual Basic, and SQL
Software: Anaconda, Jupyter, Qualtrics, Amazon Mechanical Turk, SolidWorks, Autodesk, Adobe Creative Cloud, and Microsoft Office
Security Clearances: Full U.S. Secret Clearance (May 2020 – Dec. 2021) and Confidential Clearance (May 2024 – Aug. 2024)

PUBLICATIONS

Published peer-reviewed research in venues including Human Factors, Applied Ergonomics, and HFES, IEEE, and ACM conferences on human cognition, trust in AI, human-AI performance and coordination, AI transparency, training, and real-time measurement.