Joshua Hamilton

jrhamil7@asu.edu • https://www.joshua-hamilton.com/

SUMMARY

M.S. Human Systems Engineering candidate (4.0 GPA) researching trust and reliance in autonomous systems for federal partners at ASU's Fulton Schools of Engineering. Designed and validated psychometric instruments for human–automation interaction and led mixed-methods studies combining survey, physiological, and behavioral data. Seeking a human factors engineering role in healthcare, autonomy, defense, or transportation.

EDUCATION

M.S., Human Systems Engineering; Engineering Management Minor — Graduating 12/2026
Arizona State University, Mesa, AZ — 4.0 GPA

B.S., Cognitive Psychology; Computer Science Minor — Graduated 12/2024
Montana State University, Bozeman, MT — 3.62 GPA
The Honors College

TECHNICAL SKILLS AND CERTIFICATIONS

Research Methods: Survey and Psychometric Scale Development, Scale Validation, Mixed-Methods Design, Experimental Design
Statistics and Analysis: R, Python (pandas, SciPy), SPSS
Human-Subjects Tools: QuestionPro, Prolific, SONA Systems, E-Prime, PsychoPy, Tobii Eye Tracking, BIOPAC Physiological Sensing (GSR, ECG, HR, Respiration), BCI2000
Development: Python, C#, JavaScript (React, Node.js), Unity, Unreal Engine, A-Frame
Design and Prototyping: Figma, Adobe XD
Certifications: IRB Human Subjects Research Certification (2026), Cisco Certified Network Associate (CCNA, 2024)

PROFESSIONAL EXPERIENCE

Graduate Research Assistant | Ira A. Fulton Schools of Engineering, ASU, Mesa, AZ — Oct 2025 – Present

- Collaborated with federal partners to evaluate autonomous technologies using human-centered research methods, survey design, and mixed-methods analysis.
- Designed and validated psychometric tools to assess human–automation interaction, user trust, and system usability.
- Led mixed-methods research studies, collecting and analyzing both qualitative and quantitative survey data.
- Conducted descriptive analyses in R and Python.
- Translated theoretical constructs into practical assessment tools for use in applied and real-world settings.

Game Developer | Macro-Technology Works, Tempe, AZ — Mar 2025 – Dec 2025

- Developed educational semiconductor learning modules in Unity using C# to teach complex technical concepts to students and professionals.
- Designed curriculum-aligned learning experiences balancing educational objectives with player engagement.
- Analyzed player behavior data, engagement metrics, and learning outcomes to optimize both gameplay mechanics and educational effectiveness.
- Collaborated with subject matter experts to translate technical semiconductor content into interactive game mechanics and progression systems.

Research Assistant | Human Interaction Research Lab, Montana State University, Bozeman, MT — Aug 2024 – Dec 2024

- Developed AI-powered VR training systems integrating GPT-4, machine learning, and spatial computing to create intelligent metahuman instructors in Unreal Engine 5.4.4 for collaborative robotics training in manufacturing.
- Configured and integrated biometric monitoring systems including BIOPAC galvanic skin response sensors, heart rate monitors, respiration sensors, and ECG hardware/software to capture physiological data during training sessions.
- Implemented BCI2000 brain-computer interface software to collect and analyze neurophysiological signals, enabling data-driven assessment of participant engagement and learning effectiveness in VR environments.

- Designed immersive VR learning experiences with real-time biometric feedback, enabling assembly workers to learn cobot-integrated processes through adaptive, step-by-step guidance that responds to physiological stress indicators.
- Assisted in the design of a multimodal human-robot interaction framework combining GPT-4 natural language processing, physiological sensing, and VR technology to create personalized training solutions that accelerate worker adaptation to collaborative robotics.

Research Assistant | Attention and Memory Lab, Montana State University, Bozeman, MT Jan 2023 – Dec 2024

- Recruited, scheduled, and managed 100+ participants using SONA Systems, ensuring IRB compliance for informed consent and maintaining high participation rates across multiple concurrent studies.
- Programmed and configured E-Prime experiments and set up software for remote data collection.
- Administered computer-based cognitive assessments and operated Tobii T2 eye-tracking system, monitoring real-time performance and ensuring strict experimental protocol adherence.
- Maintained and troubleshot experimental equipment (E-Prime stations, Tobii T2 eye tracker), resolved technical issues, while ensuring complete data security and integrity.
- Collected, organized, and prepared cognitive and eye-tracking data for analysis, supporting the principal investigator with data management and study coordination tasks.

PROJECTS

Personalized VR Psychotherapy Spring 2025 – Present

- Currently developing a VR-based CBT avatar that utilizes LLM API technology to deliver personalized therapeutic guidance and support to users.
- Creating an immersive and engaging VR environment within the A-Frame web framework and Unity, allowing users to practice CBT techniques in a safe and controlled virtual space, with the primary goal of fostering and improving mental well-being.

EHR Shield: AI-Assisted Security UX for Electronic Health Records Spring 2024

- Designed EHR Shield, an AI-powered UX/UI solution that addressed critical security vulnerabilities in healthcare systems, proactively identifying and mitigating potential data breaches arising from human error and outdated software.

ACTIVITIES

Academic Collaboration Officer | The AI Society at ASU Aug 2026 – Present

- Presented workshops on human–AI interaction to student members, translating research concepts into accessible, hands-on sessions.
- Contributed to the Waymo Open Dataset Challenge, studying trust and prediction of future trajectories in cooperative autonomous vehicles and differentiating between unreliability and uncertainty paradigms.

Psi Chi Web Master, Montana State University – Managed chapter website and WCAG compliance. Aug 2024 – Jan 2025

Human Factors and Ergonomics Society (HFES) – Student Member Aug 2024 – Jan 2026