Joseph Brazina

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EDUCATION

Virginia Polytechnic Institute and State University | **Blacksburg, VA**
M.Eng. in Industrial & Systems Engineering (Human Factors Engineering & Ergonomics) | *Expected May 2028*
Relevant Coursework: Human Information Processing, Human Factors System Design, Visual Display Systems
Full-time | *Planned (Spring 2027):* Usability Engineering, Human-Computer Systems, Auditory Display Systems

James Madison University | **Harrisonburg, VA**
B.S. in Psychology, Minor in Sociology | *Graduated May 2026*
GPA: 3.50 | Major GPA: 3.75 | Cum Laude

HUMAN FACTORS & UX ENGINEERING PROJECTS

Configural Conflict Display for Air Traffic Control | **Visual Display Systems Course** | *Fall 2026*
- Analyzed FAA separation standards and gaps in ERAM's automated Conflict Alert to define controller needs
- Filtered real OpenSky ADS-B data near IAD/DCA and built a risk model projecting each pair's closest approach
- Designed a decision aid merging 5 flight variables into one cue that makes automated alerts transparent
- Built a 7-frame hi-fi Figma prototype (components, Smart Animate) giving about 3 minutes of earlier warning
- Iterated 4 versions in 8 days from critique, adding redundant color, opacity, and size cues for color-blind users

Nintendo Switch 2 Home Screen Redesign | **Human Factors System Design Course** | *Fall 2026*
- Led think-aloud usability testing (5 tasks, SUS) on a 3-person team, turning findings into design requirements
- Designed the annotated wireframe and lo- and hi-fi interactive Figma prototypes, tracing each change to a finding
- Tuned text, icon, and focus-state contrast across 6 themes so controls stay legible on every background
- Wrote the human factors rationale and redesign tradeoffs, grounding each change in principles like Fitts' law

Albums as Sound: Interactive Audio Visualization | **Visual Display Systems Course** | *Fall 2026*
- Built a web app with AI-assisted coding (HTML, JavaScript, Canvas, Web Audio API) applying 8 Tufte principles
- Designed keyboard and click navigation across 4 zoom levels, with in-browser caching so albums reopen instantly

Multiple Resource Theory Dual-Task Experiment | **Human Information Processing Course** | *Fall 2026*
- Built a browser-based experiment with AI-assisted coding (HTML, CSS, JavaScript), from consent to CSV export
- Compared visual vs. auditory task interference and NASA-TLX workload in 3 conditions; analyzing in SPSS

Mobile App Usability Evaluation | **Self-Directed Project** | *Fall 2026*
- Evaluated a car-care app's service-logging flow with hierarchical task analysis and Nielsen's 10 heuristics
- Rated 3 issues by severity, mocked up Figma fixes, and planned a moderated usability test to validate them

Traffic Signal Detection Experiment | **Human Information Processing Course** | *Fall 2026*
- Ran a 6-person study of 80 go/brake stimuli simulating color-vision deficiency; analyzed hit rate and d′ in JASP

RESEARCH EXPERIENCE

Research Assistant | **Human IMPaC-T Lab, Virginia Tech** | *Oct 2026 - Present*
- Support Resonant Focus, a company-sponsored study comparing bone- vs. air-conduction 40 Hz binaural beats
- Help refine the flanker-task design, set up auditory hardware and software, and run sessions in the audio booth
- Connected the lab with an FAA contact to pursue funding for follow-on air traffic control training research

Principal Investigator | **Human Development Lab, James Madison University** | *Jan 2025 - May 2026*
- Designed and managed a 200+ participant IRB-approved study, building 3 Qualtrics surveys to gather data
- Analyzed data in SPSS and presented to faculty and peers at the 2025 and 2026 JMU Psychology Symposium
- Preparing a manuscript for submission to the James Madison Undergraduate Research Journal

Research Assistant | **Auditory Perception Lab, James Madison University** | *Aug 2024 - Dec 2024*
- Helped design a working-memory study, configured 43 DirectRT trial files, and ran 20+ participant sessions

SKILLS

Human-Centered Engineering: user research (surveys, focus groups, think-alouds), usability testing (SUS), heuristic evaluation, hierarchical task analysis, requirements definition, human-subjects research (IRB), accessibility
Design & Front-End: Figma (lo-/hi-fi mockups, interactive prototyping, components, Smart Animate), wireframing, user flows, HTML, CSS, JavaScript, Canvas, Web Audio API, GitHub Pages, AI-assisted development
Analysis: SPSS, JASP, Excel, Tableau, t-tests, ANOVA, regression, signal detection analysis, NASA-TLX

ELIGIBILITY, TRAINING & ACTIVITIES

U.S. Citizen; willing to obtain a security clearance | CITI Human Subjects Research and RCR training
Human Factors & Ergonomics Society | Institute of Industrial & Systems Engineers | Psi Chi | JMU President's List