Abraham Haskins, Ph.D.

Lead Human-AI Systems Architect

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Open to Relocation: Ireland (Critical Skills Eligible / US Citizen)

The Elevator Pitch

Lead Human-AI Systems Architect combining Ph.D.-level cognitive science with rigorous systems engineering. I do not just analyze human error; I architect the automated workflows and governance structures that prevent it. Specializing in **Human-Autonomy Teaming (HEAT)**, **Regulatory Harmonization (FAA/EASA)**, and **Systemic Risk Mitigation** for high-stakes environments. From leading the **Alaska Door Plug crisis response** to architecting Python-based AI agents for enterprise workflows, I build the bridges between rigid certification constraints and agile cognitive innovation.

Core Technical Stack

- **Engineering & Validation:** Safety-Critical Systems Analysis, Root Cause Corrective Action (RCCA), ISO/Regulatory Compliance, Bayesian Network Modeling.
- **Data & Development:** Python (Agentic & Standard Workflows), R, C#, C++, SQL, Docker, Git.
- **AI & Modeling:** Large Language Model (LLM) Optimization, Bayesian Network Modeling (Netica), Structural Equation Modeling, OPro Loops.
- **Design & Prototyping:** Figma, Unity, Adobe Creative Suite (XD, After Effects), Rapid Prototyping.

Professional Experience

The Boeing Company | *Everett, Washington*

Expert Systems Engineering Engineer | *June 2022 – Present*

Lead technical investigator and systems designer for high-impact production safety initiatives and AI-driven process modernization.

- **Crisis Response & Systemic Remediation (Alaska Door Plug):** Solicited by Senior Technical Leadership to lead the Human Factors investigation for a critical structural non-conformance event. Architected a four-pronged corrective action strategy addressing (1) Information Retrieval Failures, (2) Documentation Continuity, (3) Mechanic Training, and (4)

Traveled Work Reduction. De-risked unviable search technologies (GraphRAG) early to redirect resources toward high-impact process controls.

- **Enterprise AI Architecture & Tooling:** Founding member of the **AI Governance Sub-Council**, championing the transition from legacy gatekeeping to the **Human-AI Teaming (HEAT)** value framework.
    - **O-Pro Loop & SLE Matcher:** Architected agile "Bespoke Cognitive Agents" to resolve IP Simplification bottlenecks. Executed a rapid Python-based proof-of-concept that validated the prompt engineering approach, enabling a successful handover to global scaling teams.
    - **Generative AI Enablement:** Served as the division's "One-Stop Shop" for Large Language Model (LLM) strategy, democratizing technical capabilities by training engineering teams on "LLM vs. LRM" prompting architectures.
- **Safety-Critical HMI Design (Dash 8F):** Led the ergonomic redesign of the **Main Control Panel (MCP)** and **Supernumerary Corridor Panel**. Utilized high-fidelity prototyping (Figma/InVision) to optimize cargo handling logic and "Left/Right" entry workflows.
- **Predictive Quality Modeling:** Developed the "General Inspection-Error Model" using Bayesian networks in Netica. Integrated complex variables (defect rates, shift length, ambient conditions) to predict and prevent quality escapes before they occurred.
- **Regulatory Innovation & Academic Liaison:** Served as Industrial Liaison for the **Carnegie Mellon University (CMU)** Visiting Professor Program, steering academic research on **"Entropic Risk Modeling"** toward actionable enterprise safety applications.
    - **VR Compliance Validation:** Co-authored the definitive FAA white paper on "Cabin Crew Taxi Safety," pioneering the use of **Virtual Reality (VR)** simulations to validate safety protocols, establishing a new standard for non-flight-test regulatory findings.
- **Next-Gen Logistics Vision (Project Galactica):** Directed the UX architecture for **Connected Cargo**, designing multi-modal interfaces (Tablet/Mobile/Vision) for intelligent freight management. Defined the visual language and interaction standards for future autonomous logistics systems.

Infoscitex (Defense Contractor) | *Dayton, Ohio*

Human-Autonomy Teaming Lead Designer (Active Secret Clearance Held) **|** June 2019 – January 2022

Principal interface designer for a 30-member multidisciplinary team focusing on Pilot-AI interaction.

- **UAV Swarm Control:** Spearheaded the development of a pioneering interface enabling single-pilot control of UAV swarms. Validated system efficacy through both simulation and live-flight exercises.
- **Adaptive Automation:** Engineered a "User State Modeling Framework" that ingested real-time biometric data (eye tracking, heart rate) to dynamically adjust automation assistance levels during high-workload combat scenarios.

- **Rapid Prototyping:** Produced hundreds of iterative interface designs (Adobe XD/Unity) based on direct feedback loops with veteran pilots, reducing training time and error rates in complex tactical environments.

United States Army | *Olympia, WA & Afghanistan*

Behavioral Health Specialist / Operations Lead | *Nov 2011 – Nov 2015*

- **Operational Resilience:** Managed stress management and cognitive-behavioral programs for 300+ deployed soldiers in a high-threat environment.
- **Systems Leadership:** Served as S2 (Ops) and S6 (Comms) lead, automating back-office tasks and maintaining mission-critical communication interfaces under pressure.

Education

Wright State University | Dayton, Ohio

Ph.D. in Human Factors & Industrial/Organizational Psychology (4.0 GPA)
Dissertation: "Capturing Intentional Testing of an Automated System" – Research on user trust and adversarial testing of AI.
M.S. in Human Factors Psychology (4.0 GPA)

Additional Academic Background
M.A. Counseling Psychology (Capella University) | **B.A. Psychology & B.S. Economics** (UT-D)

Strategic Leadership & Academic Instruction

- **Enterprise AI Strategy & Governance:** Architected the **"Human Factors-AI Intersection Framework,"** a high-level strategic workflow adopted to guide safe AI integration across the enterprise. Concurrently led the AI Governance Council's lexicon initiative to standardize technical terminology for 300+ engineers.
- **Multi-Domain Technical Instruction:** Delivered 500+ hours of curriculum across diverse high-stakes environments:
    - **University:** Taught "Research Methods" and "Advanced Statistics" as an Academic Instructor at Wright State University.
    - **Corporate:** Developed and led "Interface Visualization" and "Figma" workshops for Boeing engineering teams.
    - **Operational:** Designed resilience and cognitive-behavioral training programs for deployed personnel in the US Army.
- **Volunteer Consultancy:** Advised the Autism Society on program design and operational effectiveness.