TRISTAN ALLEN

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HUMAN FACTORS ENGINEERING | PRODUCTIVITY SYSTEMS

Human Factors oriented systems builder focused on prototyping technologies that improve productivity and decision-making in constrained environments. I build and test planning tools, feedback systems, and automation workflows to understand how they affect real behavior—keeping what reduces friction and discarding what does not. Emphasis on cognitive load, workflow structure, and human-in-the-loop automation.

EDUCATION

B.S. Industrial-Organizational Psychology, Minor in Data Science – BYU–Idaho (Apr 2026)
Coursework: Experimental Design, Statistical Inference, Machine Learning, Cognitive Psychology, Research Methods, Data Visualization, Assessment Design, Industrial-Organizational Psychology, Organizational Leadership, Data Base Design

CORE COMPETENCIES

- o **Human Factors & Systems Evaluation:** Stakeholder-informed system design • Simulation-based modeling • Workflow and medium effectiveness evaluation • Human oversight in automated systems
- o **Applied Modeling & AI:** Python (Pandas, PyTorch, TensorFlow) • Discrete-event simulation • NLP pipelines • XGBoost • SQL data modeling • API-based service design
- o **Technical Systems:** FastAPI • Structured documentation • Git/GitHub • R (ggplot2) • Tableau

SELECTED PROJECT EXPERIENCE

Discrete-Event Simulation – Hill Air Force Base (2025)

Planned and developed a stakeholder-driven discrete-event simulation modeling aircraft and parts inventory flow under capacity and replenishment constraints. Conducted mathematical validation and scenario-based experimentation, executing 50+ long-horizon simulations in under one minute to enable rapid comparison of operational policies. Produced formal technical documentation and data visualizations and presented findings to senior and military leadership to support productivity, efficiency, and inventory decisions. Contributed to leadership decisions favoring internally developed modeling approaches over costly closed-source consulting alternatives.

Alden – Human-Centered AI Decision Support System

Developed and iteratively refined a Python-based planning assistant designed to improve daily productivity through structured task modeling and behavioral feedback. Evaluated multiple delivery mediums (CalDAV scheduling, email summaries, Telegram approval workflows) and pivoted system architecture after observing low effectiveness in automated planning and passive delivery. Designed to preserve privacy and minimize context switching to support sustained cognitive flow.

LifeNotes – AI Knowledge Capture Platform

Developed an offline-first speech-to-text and semantic retrieval system (Whisper + FAISS) designed to improve productivity by reducing friction in information capture and recall. Evaluated alternative text-entry frameworks and presentation formats through iterative user feedback, refining folder structures and retrieval workflows for clarity and ease of use. Structured the system around human-in-the-loop approval, low-friction feedback, and cost-aware model selection to balance usability and reliability.

Compass – Portfolio Management Automation System

Developed a human-in-the-loop automation system to manage portfolio updates and GitHub workflows. Identified Telegram-based workflows as more effective and intuitive than email delivery for plan review and approval, improving interaction frequency and reducing friction. Iteratively tested AI model configurations to balance cost and performance while maintaining reliability.

PROFESSIONAL EXPERIENCE

Advanced Drywall LLC – Foreman (2019-Present)

Planned and executed residential and commercial finishing projects, independently structuring work phases, material delivery timing, and crew assignments to achieve efficient project completion. Regularly re-sequenced tasks to compensate for out-of-order work from general contractors, managing multiple concurrent projects while maintaining quality and deadlines. Trained and supervised small crews (2–3 members) across drywall, painting, trim repair, fireproofing, and acoustical ceiling installation, emphasizing process order, quality standards, and execution speed. Optimized daily workflow by strategically sequencing materials and processes (e.g., coordinating hot and soft mud applications to complete multiple coats per day), increasing productivity without sacrificing finish quality.