

# Jack Francis, PhD

AI Solutions Director | Active TS Clearance | Huntsville, AL

[github.com/JackFrancis2357](https://github.com/JackFrancis2357) | [jfprojects.dev](https://jfprojects.dev)

## Executive Summary

A hands-on Principal AI Architect and Strategic Leader with 5 years of post-PhD experience developing AI solutions, leading high-performing technical teams, and architecting AI strategy for the national security sector. Proven ability to secure executive buy-in, mentor talent, and direct the full lifecycle of complex AI/ML solutions from R&D to production. A recognized community leader and speaker on the practical application of AI in defense.

## Core Competencies

- **AI Strategy & Leadership:** Corporate AI Strategy, Executive-Level Briefing, Team Leadership & Mentorship, Proposal Development, IRAD Technical Shaping
- **AI/ML Methods:** Generative AI (LLM, RAG, Agents), Deep Learning, Computer Vision, Natural Language Processing, Bayesian Optimization, Machine Learning
- **MLOps & Cloud:** MLflow, Docker, GitLab, Kubernetes, AWS GovCloud (Serverless, Compute, Storage, Networking, Bedrock/AI)
- **Languages & Frameworks:** Python, PyTorch, Keras, Flask, FastAPI, SQL, LlamaIndex, pgvector, Supabase

## Professional Experience

### **AI Solutions Director (Prev. AI/ML Team Lead & ML Engineer)**

*Davidson Technologies | Huntsville, AL | Jan 2022 – Present*

- **Corporate Strategy & Innovation:** Authored and executed the corporate AI/ML strategy, securing C-suite buy-in to align IRAD efforts. Co-founded the Internal Innovation Cell to enhance internal business processes. Architected and deployed internal AI tools for analytics and market analysis, ingesting Presidential J-Book data to visualize DoD RDT&E spend to shape IRAD investment strategy.
- **Program Expansion & R&D:** Spearheaded the creation of a new AI workstream by identifying an opportunity in a casual customer inquiry. Personally, led the research, white paper authorship, and prototyping that validated the concept, converting the idea into a funded feature across multiple Program Increments executed in IL6 environment.
- **Proposal Development:** Drove technical volume development for major RFIs/RFPs and led submissions for SBIR Phase I/II and Army xTech challenges, specifically in agentic AI, autonomous navigation, engagement optimization, and synthetic data generation.
- **Program Direction:** Directed the full lifecycle of AI programs (HOPS, COARE, HOPS Engage), serving as both Technical Lead of a core technical team and acting as lead developer for Deep Learning and Bayesian optimization solutions while providing technical demonstrations to high-level DoD customers (50+ demonstrations).
- **Rapid Prototyping:** Translated strategic goals into execution by delivering prototypes in under three weeks for key growth areas, including Logistics and Digital Engineering.

- **MLOps & Engineering Standards:** Standardized development processes by implementing extensive MLOps and CI/CD pipelines across multiple programs, utilizing Mlflow, Docker, and GitLab to ensure scalability and reproducibility.
- **Technical Community Leadership:** Founded and scaled the AI Community of Excellence, mentoring 30+ participants through monthly technical deep-dives and Kaggle competitions to foster a culture of continuous learning.
- **Organizational Leadership:** Elected Chairperson of the Employee Council, leading the definition of the company's mission, vision, and core values. Formally mentor technical staff through recurring 1-on-1 development sessions to foster career growth.

## Senior Data Scientist

*KBR | Huntsville, AL (Remote) | June 2020 – January 2022*

- **Proposal Leadership:** Led a team of 7 subcontractors in the development of a technical demo for a \$3M PEO CS&CSS proposal.
- **Production Deployment:** Deployed production NLP applications for the F-35 LIST Program (Navy) to assist users in identifying critical maintenance trends.
- **Solution Architecture:** Architected a full-stack NLP application on AWS to apply state-of-the-art NLP algorithms to NHTSA technical reports, achieving over 80% accuracy in topic identification.
- **Internal Tooling:** Developed "Project Golem," an internal knowledge management tool with visual machine learning modules to advance data literacy and training.

## Thought Leadership & Community Involvement

- **Workshop Organizer/Presenter,** AI Symposium: "AI for Enhanced Productivity" (2026)
- **Invited Speaker,** Huntsville Corporate Security Symposium: "How AI is Transforming National Security" (2025)
- **Speaker,** SMD Symposium: "HOPS: Missile Defense Laydown Optimization" (2025)
- **Selected Member,** Committee of 100 Young Professionals Program (2025)
- **Steering Committee Member,** Leadership Greater Huntsville (LGH) Management Academy (2025-Present)

## Education

### Doctor of Philosophy (PhD), Industrial Engineering

*Mississippi State University | Mississippi State, MS | Dec 2020*

- **Research Focus:** Transfer Learning in Laser-Based Additive Manufacturing
- **Publications:** 5 Journal Publications and multiple conference presentations
- **Notable Internships:** Nike, Amazon, Frito Lay, Benchmark Electronics

## Awards & Recognition

- **Recipient, Davidson Challenge Coin** (2024)
- **Graduate, LGH Management Academy** (2024)
- **Winner, Navy HacktheMachine Data Science Competition** (2021)
- **Graduate School Hall of Fame Scholar,** Mississippi State University (2020)
- **Outstanding Graduate Researcher,** MSU College of Engineering (2020)