

Blake Pennel

Lawrence, KS

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Education

University of Kansas – B.S. Computer Science, B.S. Mathematics

SELF Fellowship, Honors; GPA: 3.9

Lawrence, KS

Aug 2024 – May 2028

- Study Abroad: Korea University — Coursework: AI, Deep Learning

Experience

NASA Jet Propulsion Laboratory (JPL)

AI & Cybersecurity Intern

Pasadena, CA

Jun 2026 – Aug 2026

- Designed and developed an agentic AI application for NASA's Deep Space Network to analyze cybersecurity vulnerabilities and generate actionable remediation recommendations.
- Researched and evaluated tradeoffs in model integration, application architecture, and cybersecurity requirements, translating findings into system design and implementation decisions.

Midwest VICEROY Institute, University of Kansas

Undergraduate Researcher

Lawrence, KS

Feb 2026 – Present

- Leading a faculty-mentored first-author research project under Dongjie Wang, Fengjun Li, and Bo Luo on robotics-inspired VQ-VAE/VLA-style methods for improving LLM text-to-SQL generation.
- Built PyTorch pipelines for baseline reproduction, SQL autoencoding, and latent codebook experiments to study compressed, discrete representations of structured queries.

MITRE

Machine Learning Research & Development Intern

McLean, VA

May 2025 – Aug 2025

- Researched, prototyped, and delivered machine learning solutions, evaluating hardware, software, framework, and model tradeoffs to produce a sponsor-facing deliverable and end-to-end demo.
- Developed a repeatable process for integrating machine learning into existing projects; collaborated with multiple teams to incorporate AI capabilities into their systems.

Cornerstone Integration

Research & Development Intern

Leavenworth, KS

Jun 2023 – Jan 2025

- Designed, prototyped, and demonstrated integrated hardware-software systems to solve technical problems across research, evaluation, and partner-facing efforts.
- Researched and implemented AI, computer vision, embedded/IoT, cloud, networking, and security technologies in collaboration with vendor engineering teams to guide technical integration decisions.

Skills

- **Deep Learning & ML:** PyTorch, Computer Vision, CNNs, Transformers, LLMs, Fine-tuning, RAG, Sequence Models, Edge AI, LiteRT, ONNX Runtime, LightGBM, LoRA, AI Agents, MCP
- **Programming:** Python, C, Java, Bash, PowerShell
- **Systems & Infrastructure:** Linux, Docker, Git, Virtualization, Nginx, AWS, Azure

Competitions & Technical Reports

- Two-time CyberPatriot National Finalist, ranking in the top 0.1% nationally among 5,264 teams.
- Programmed a FIRST Tech Challenge robot for manual and autonomous operation with computer vision.
- **Blake Pennel.** "Automating Cybersecurity Recommendations for Remediation of Vulnerabilities within NASA's Deep Space Network: An Agentic Approach." NASA Jet Propulsion Laboratory, California Institute of Technology, 2026. *Technical report.*