

Eleanor Hodges

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SUMMARY

Early career data scientist with a 2026 Bachelor of Science in Computer Engineering and applied academic work across instrumentation and control systems, artificial intelligence, machine learning, automation, and **model based engineering**. Developed Python and C++ prototypes, integrated inference components into software applications, and evaluated AI use cases through risk, mitigation, testing, and human review. Built experience with on premises computing, **large language models**, **agentic LLM frameworks**, MCP servers, CI/CD, DevSecOps, cybersecurity principles, and controlled technical workflows. Prepared specifications, implementation justifications, execution plans, procurement materials, process controls, test evidence, and technical briefings. Coordinated multidisciplinary university teams and communicated findings through clear documentation. U.S. citizen prepared for **Federal background investigation**, classified matter eligibility, and 10 CFR 707 drug testing requirements.

EDUCATION

Bachelor's Degree in Computer Engineering
University of Pittsburgh GPA: 0
Coursework: Data Science, Artificial Intelligence, Machine Learning, Cybersecurity, Software Engineering

2026
Pittsburgh, PA

TECHNICAL SKILLS

- **Programming Languages:** Python, C++, Software interfaces
- **Artificial Intelligence:** Artificial intelligence, Machine learning, Large language models
- **Engineering Systems:** Instrumentation and control, Model based engineering, Automation
- **AI Agent Platforms:** Agentic LLM frameworks, MCP servers, Tool calling
- **Software Delivery:** CI/CD pipelines, Unit testing, Static analysis
- **Security Engineering:** DevSecOps, Cybersecurity principles, Secure software development
- **AI Risk Management:** Use case assessment, Risk matrices, Mitigation planning
- **Technical Documentation:** Technical specifications, Execution plans, Procurement materials
- **Data Analysis:** Anomaly detection, Sensor streams, Baseline analysis
- **Systems Infrastructure:** On premises solutions, Local tools, Computing components
- **Quality Controls:** Process controls, Configuration control, Test evidence

SKILLS

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|---------------------------|---------------------------|-------------------------|----------------------------|
| • Python | • Model based engineering | • MCP servers | • Cybersecurity principles |
| • C++ | • Automation | • Large language models | • AI risk assessment |
| • AI and machine learning | • On premises solutions | • CI/CD pipelines | • Technical writing |
| • I&C systems | • Agentic LLM frameworks | • DevSecOps | |

EXPERIENCE

Data Scientist, I&C Systems Capstone
Capstone Project

January 2026 - September 2026
Pittsburgh, PA

Led a supervised university capstone focused on simulated I&C sensor data, AI/ML software integration, verification, documentation, and multidisciplinary technical delivery.

- Built **Python** anomaly detection for simulated I&C sensor streams and defined verification criteria.
- Integrated AI/ML inference into an engineering application with documented failure handling and limitations.
- Compared **automation** use cases through **risk** matrices covering data quality, cybersecurity, and human review.
- Prepared **technical specifications**, implementation justifications, test plans, and mock **procurement** materials.
- Built CI/CD checks for testing and packaging with controlled configuration and dependency review.
- Coordinated five student contributors through milestones, process procedures, test evidence, and technical briefings

AI Systems Research Assistant
University Research Lab

September 2025 - December 2025
Pittsburgh, PA

Supported supervised research on on premises AI agents for engineering documents, with emphasis on evaluation, access boundaries, reproducibility, and secure software delivery.

- Prototyped on premises document retrieval using Python, **agentic LLM frameworks**, and **MCP servers**.
- Tested large language model tool calls for accuracy, latency, unsupported outputs, and failure modes.
- Applied **input validation** and **access boundaries** against excessive permissions and untrusted content.
- Maintained repository checks using unit testing, **static analysis**, CI/CD, and DevSecOps methods.

- Wrote architecture notes, interface descriptions, operating procedures, and reproducible experiment summaries.
- Presented evidence and proposed **mitigations** to faculty and graduate researchers during review sessions

Model Based Engineering and Automation Student

January 2025 - May 2025

Student Lab

Pittsburgh, PA

Completed supervised laboratory work involving C++, Python, simulated control signals, **model based engineering**, automation analysis, and configuration controlled technical communication.

- Built **C++** and Python software for simulated control signals and basic engineering analysis.
- Mapped system model interfaces to generated data, analysis scripts, requirements, and test cases.
- Compared new analysis methods with baseline calculations and documented assumptions requiring engineering review.
- Created file naming, versioning, peer review, and test evidence controls for reproducible results.
- Drafted technical memos and specifications describing software behavior, data flow, and limitations.
- Organized student integration checkpoints and weekly assignments around course delivery milestones

PROJECTS

Secure Agent Evaluation Framework 📅 2026

Created a controlled evaluation concept for engineering document agents, connecting MCP servers, large language models, access boundaries, failure analysis, and cybersecurity mitigations.

I&C Sensor Anomaly Analysis 📅 2026

Developed a simulated sensor analysis workflow that linked Python modeling, engineering interfaces, verification criteria, process controls, and technical documentation.

LEADERSHIP & AWARDS

- Senior Design Technical Communication Award, 2026
- Dean's List, 2025 and 2026
- Engineering Academic Achievement Scholarship, 2025

CERTIFICATIONS

- Microsoft Learn DevSecOps Learning Path 📅 2026
- IBM SkillsBuild Artificial Intelligence Fundamentals 📅 2026
- Secure Software Development Fundamentals 📅 2025

PROFESSIONAL AFFILIATIONS

- Engineering Student Design Council, Capstone Representative, 2026
- Cybersecurity Student Group, Workshop Participant, 2025 - 2026
- Undergraduate Research Symposium, Student Presenter, 2026

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST