

Joel McCandless | AI Engineer

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EDUCATION

Rensselaer Polytechnic Institute

M.S. May 2027 | B.S. 2026

M.S. in Computer Science; B.S. in Computer Engineering and Computer Science; Minor in Finance

4.0 GPA, Dean's Honor List, Rensselaer Leadership Award, Featured by RPI: [Engineering to Protect](#)

Extracurriculars: [RPI Men's Tennis](#), [RPI Cybersecurity](#), Rensselaer Center for Open Source, UPE, SAAC

MACHINE LEARNING & AI SKILLS

Skills: classification, linear/logistic regression, feedforward/convolutional/recurrent/deep neural networks

Frameworks: numpy, pandas, PyTorch, TensorFlow, langchain, scikit, opencv, Git, Jira, Python, C/C++

EXPERIENCE

Creator & Project Lead | Shubble

Jan 2025 - Present

- Created, led, and launched an [open-source RPI shuttle tracker](#), **used by 10,000 students weekly**
- Managed 16 students across mobile, UI, testing, and data teams using Agile methodology and Git
- Orchestrated a data pipeline to preprocess raw location data and feed it into model training and testing
- Applied TCNs/RNNs to ETA prediction; used bipartite graph matching to match shuttles to schedules

GPS & Navigation Intern with AI Integration | MITRE Corporation

May 2025 - Jul 2025

- Created a multi-process MCP interface using Llama and Mistral to control frequency and bandwidth of a software-defined radio; adopted by a team of 20 people as a foundational agentic radio codebase
- Applied computer networking principles to satellite communication systems; **accelerated virtual validation speed by 3x** by implementing real-time data visualization using pandas and matplotlib

Full-Stack Software Engineering Intern | XP Health

May 2024 - Jul 2024

- Designed and implemented a scalable full-stack barcode scanner framework to incorporate scanners into the daily operations workflow, **boosting inventory counting speed by 6x for 12 people**
- Reduced API latency 100x by leveraging Django QuerySet prefetch related to optimize SQL calculations

PROJECTS & RESEARCH

Project Owner and Developer | AI Agent for Shuttle Alerts

Nov 2025 - Present

- Created a continuous uptime AI agent to digest data from RPI transportation, developer messages, and the backend database to generate succinct status updates and send reports to developers
- Used LangChain to augment Gemini with ReAct-driven information retrieval, memory, and tool calls

AI Researcher | Verifiable Neural Network Controllers

Aug 2025 - Present

- Utilized Verisig to analyze Neural Network controllers as hybrid systems and guarantee performance
- Implemented an adaptive control strategy to adjust to unknown system fault conditions and reliability

Software Engineer | Project Recollect - HackRPI

Nov 2025

- Extracted text and images from archives of the student newspaper using Optical Character Recognition
- Stored multi-modal embeddings of words, documents, and images in a searchable vector database
- Used Retrieval Augmented Generation to summarize search results, inspired by Google AI Overview

Software Engineer | Project Able - HackRPI

Nov 2024

- [Won Best Accessibility Hack](#) at RPI hackathon, competing against 260 teams from 3 universities
- Leveraged AI (OpenAI's ChatGPT, Google Speech-to-Text) to build an **accessibility-focused navigation app** for the visually impaired with voice interaction and user-recorded audio playback

Robotics Researcher | 2 Robot Leader-Follower Formation Control

Jan 2024 - May 2024

- Developed leader-follower control and obstacle avoidance using Artificial Potential Field path planning
- Aggregated LiDAR, vision, and force cells using homogeneous transforms to align reference frames

See [my website](#) for more experiences, projects, and research.