Matthew C. Voynovich

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EDUCATION

RENSSELAER POLYTECHNIC INSTITUTE **Troy, NY**
M.S. in Computer Science and B.S. Information Technology & Web Science May 2026 - May 2027
Concentration in AI, Machine Learning, and Data Science

Master's Thesis/Research Focus: Analysis of Agent and LLM interaction workflows, leveraging frameworks like LangChain and protocols (e.g. MCP) to proactively identify security risks and enhance system observability/debugging. Project scope includes expanding analysis to emerging orchestration systems.

RENSSELAER POLYTECHNIC INSTITUTE **Troy, NY**
Dual Major B.S. in Computer Science and B.S. Information Technology & Web Science Aug 2023 - May 2026
Concentration in AI, Machine Learning, and Data Science

Cumulative GPA: 3.97/4.0; Dean's List 2023-2025; Accelerated to Graduate in 3 years
Relevant Coursework: Data Structures, Algorithms, Intro to Logic Based AI, Computer Organization, Web Science Development, Computational Vision, Intro to AI, Math Foundations of Machine Learning, Machine Learning from Data, Managing IT Resources, Data Science, Data Analytics

Technical Skills: Advanced in SQL, PHP, JavaScript, Java, HTML/CSS, React, Vue, Node.js, Express.js, MongoDB, Python, C, C++, Machine Learning Techniques (Convolutional Neural Networks, PyTorch, etc)
Awards and Leadership: 3x Dean's Honor List; Head of Events/Coach for Rensselaer Running Club, UPE Honor Society

WORK EXPERIENCE

FULL STACK DEVELOPER **RPI, NY**
Contract Work for Novella Prep June 2025 – Aug 2025

- Spearheaded the development of a new product line that opened an entirely new revenue stream for a test prep company.
- Led the creation of Zeewa, a cutting-edge EdTech platform designed to enhance learning through diagnostic exams, unlimited AI-generated practice questions, and interactive lessons and assignments
- Built a scalable Vue.js + Node.js + PostgreSQL (Supabase) system using TypeScript, Docker, and Nginx for secure multi-tenant deployment. Integrated OpenAI LLMs for dynamic content creation and implemented real-time LaTeX/Markdown rendering, SSE pipelines, and stateful authentication.
- Managed full deployment workflow with DigitalOcean, Render, and Porkbun (domain/DNS, SSL/TLS).

RESEARCH

OPTIMIZATION IN QUANTUM **RPI, NY**
Undergraduate Researcher, RPI June 2025 – Dec 2025

- Conducted research on the applications of quantum computing in optimization problems, implementing the Quantum Approximate Optimization Algorithm (QAOA), comparing quantum techniques to classical and machine learning–based techniques.
- Used hybrid-classical optimization techniques in JAX and Qiskit to solve seismic inversion problems.

INVESTIGATIONS OF QUANTUM PHASE ESTIMATION **RPI, NY**
Undergraduate Researcher, RPI Jan 2025 – June 2025

- Researching applications of Quantum Phase Estimation (QPE) in Quantum Signal Processing. Exploring the mathematical foundations of quantum Fourier transforms, eigenvalue estimation, and phase estimation techniques to enhance signal processing.
- Designing, implementing, and optimizing quantum circuits using Qiskit, leveraging IBM's quantum computing framework to simulate and test QPE-based algorithms and testing said quantum programs on the RPI Quantum Computer.

PROJECTS

OREGANO THYME **RPI, NY**
Independent Contractor, Full Stack Developer Sep 2025 – Nov 2025

- Collaborated in a small team to develop a full-stack website for a local Troy, NY restaurant with limited online presence, leading backend development and integrating the site with the restaurant's existing Clover POS system, while implementing React-based frontend–backend communication.

HOMEFUL **RPI, NY**
Developer Jan 2025 – April 2025

- Developed a web application designed to help students compare off-campus housing options around RPI while also evaluating on-campus alternatives. Using Node.js, Express.js, Vue.js, MongoDB, and our own RESTFUL API, the platform provides an intuitive interface for browsing, filtering, and analyzing housing based on factors like price, location, amenities, and leases.

AUTOMATED REASONING LIGHTUP (AKARI) SOLVER **RPI, NY**
Developer Nov 2024 – Dec 2024

- Solved the popular logic puzzle, Akari, using Z3, a SMT solver, applying automated reasoning techniques to efficiently solve puzzle configurations. Implemented constraint-based algorithms to validate board states against game rules and generate solutions dynamically. Utilized automated reasoning techniques to efficiently solve board states, ensuring logical accuracy.