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 — 2026 - May 2027
Concentration in AI, Machine Learning, and Data Science

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: Managing IT Resources, Algorithms, Computer Organization, Database Systems, Web Science Development, Math Foundations of Machine Learning, Computational Vision, Intro to AI, Intro to Logic Based AI, Machine Learning from Data, Data Science, Data Analytics, Decentralized AI, Projects in AI & ML

Technical Skills: SQL, PHP, JavaScript, Java, HTML/CSS, React, Vue, Node.js, Express.js, MongoDB, Python, C, C++, Machine Learning & AI: Scikit-learn, PyTorch, LangChain

Awards and Leadership: 5x Dean's Honor List; President of the 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

AI AGENT SYSTEMS & WORKFLOW SAFETY — **RPI, NY**
Graduate Researcher, RPI — Jan 2025 – Present
- Conducting research on AI agents' automatic workflow generation to ensure compliance with privacy and security policies.
- Studying agent planning, tool usage, and data flow in frameworks such as LangChain and LangGraph.
- Developing techniques to analyze and mitigate sensitive information leakage in agent-based systems.

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.

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.