MATT SCHUMACHER

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EDUCATION

University of Michigan, Ann Arbor, MI — Expected Graduation May 2026
M.S.E. in Computer Science, College of Engineering — GPA: 4.0/4.0

Select Courses: 582 Adv. Operating Systems; 583 Adv. Compilers; 585 Adv. Scalable Systems

University of Michigan, Ann Arbor, MI — Graduated May 2025
B.S.E. in Computer Science, College of Engineering, Summa Cum Laude — GPA: 3.9/4.0
B.B.A. in Business Administration, The Ross Business School, Magna Cum Laude

University Honors and Dean's List – All Semesters; Awarded William J. Branstrom Prize
Select Courses: 482 Operating Systems; 491 Distributed Systems; 489 Networking; 445 Machine Learning; 498 Machine Learning Research; 498 LLMs; 484 Databases; 476 Data Mining, 485 Web Systems; 493 UX Design

PROFESSIONAL EXPERIENCE

University of Michigan – CHEPS || *Software Engineering Intern* — *May 2024 – August 2025*

Led successful full-stack development of simulation tool now used in production across 170 hospitals in the U.S. Department of Veterans Affairs.

Engineered 78% performance improvement in existing simulation frameworks through parallelization techniques, including linear algebra implementations and cache optimization techniques.

Aptiv || *Software Engineering Intern* — *May 2023 – July 2023*

Architected and deployed a machine learning-driven service for automated user experience analysis and reporting in kiosk applications.

Executed comprehensive full-stack development encompassing ML model integration, network architecture, concurrent programming, and client-side data collection systems.

Aptiv || *Data Science Intern* — *May 2022 – August 2022*

Developed and implemented a multi-modal machine learning system achieving 91% accuracy in autonomous drive test failure detection, substantially streamlining testing procedures.

Orchestrated data collection and refinement initiatives to optimize machine learning model performance, incorporating diverse data types including metadata and video inputs.

Lakeside Software || *Software Engineer* — *June 2018 – August 2021*

Developed novel data mining software that linked user experience degradation symptoms with causative patterns, resulting in one of the industry's first proactive IT technologies.

Contributed significantly to a product that won the prestigious Best of Show Award at VMworld Las Vegas 2018 for Digital Workplace over approximately 500 other technologies.

PROJECTS

Vibe Kernel – Agentic Kernel Development Assistant — *August 2025 – Current*

Designed and implemented an AI-driven development tool specialized for Linux kernel engineering, using orchestrator–worker agent patterns, Model Context Protocol (MCP), and integrations with Elixir cross-references and kernel documentation.

Wine Recommendation Service — *May 2025 - Current*

Designed and implemented a full-stack web application for natural language–driven wine recommendations using TypeScript (React + Tailwind), Python, and PostgreSQL, delivering a production-ready system from UI to database.

Integrated MCP as the agent communication backbone, allowing the system to coordinate reasoning across multiple external data sources for context-rich wine recommendations.

PATENTS AND PAPERS

Granted US Patent No. 11,461,212, "Apparatus and Method for Determining the Underlying Cause of User Experience Degradation," and continuation-in-part patent No. 11,983,088

Co-author for "Developing a systems-focused tool for modeling lung cancer screening resource needs", describing my technical contributions at Michigan Medicine. PubMed ID: 39237997

SKILLS AND ABILITIES

Computer Languages: C++, Go, Python, Java, JavaScript, TypeScript, SQL
Proficiency in: Multi-threading and Concurrency, Networking, Machine Learning, AI Tools, Cybersecurity, Object Oriented Programming, Databases, Web Applications, Data Structures and Algorithms