

Ethan Marshall

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RESEARCH FOCUS

PhD student building safety infrastructure for clinical and companion conversational AI — runtime conformance monitoring, machine-adapted fidelity instruments, and the evidence layers new chatbot laws demand.

EDUCATION

University of Miami, Coral Gables, FL Aug 2025 – present (expected Apr 2029)
Ph.D., Computer Science — Advisor: Dr. Ubbo Visser

University of Michigan, Ann Arbor, MI Aug 2021 – Dec 2024
B.S.E., Computer Science — GPA 3.64; University Honors; Dean's List

RESEARCH EXPERIENCE

University of Miami, Department of Computer Science, Coral Gables, FL Aug 2025 – present
Graduate Research Assistant — Advisor: Dr. Ubbo Visser

- Building safety infrastructure for clinical and companion conversational AI: clinician-validated fidelity instruments adapted for machine-generated text, and lightweight runtime monitors that flag protocol violations during a conversation rather than in an audit afterward.
- Designed and ran pre-registered pilot studies evaluating LLM counselors, with dual cross-family labelers.

University of Michigan, Dynamic Project Management Lab, Remote Jun 2024 – Aug 2025
Research Assistant — Civil & Environmental Engineering; PI: Dr. SangHyun Lee

- Built the SwiftUI app and Python data pipeline for a construction-worker fatigue-detection study, integrating a Bluetooth wearable; deployed at multiple Ann Arbor construction sites with positive user feedback.
- Designed and shipped a React Native + Firebase app to record and analyze workers' creativity levels.
- Supported the lab's commercialization effort: customer-discovery interviews, business-plan documents, and workshop sessions.

PAPERS

First-author paper under double-blind review (2026) on runtime monitoring for clinical conversational AI. Available on request.

PROFESSIONAL EXPERIENCE

Franklin-Bingham Fire Department, Franklin, MI (Hybrid) Aug 2024 – Sep 2025
Full-Stack Developer

- Built and shipped a React Native app (front end and back end) giving firefighters one-tap access to 300+ critical phone numbers, locations, and other data items.
- Ran usability testing with firefighters and deployed to devices in the field via iOS and Android enterprise distribution.

Radiance Technologies, Dayton, OH (Remote) Jun 2023 – Aug 2023
Modeling & Simulation Intern

- Designed and implemented a custom package system in Rust and C++, including a variant of the standard package-resolution algorithm, that made a military 3D simulation program accessible to non-technical users across 275+ organizations.

Radiance Technologies, Dayton, OH (Remote) Jun 2022 – Aug 2022
Modeling, Analytics & Simulation Sciences Engineer Intern

- Built new Qt/C++ user interfaces for Air Force simulation software and added a suite of cybersecurity simulation tools (attacks, defenses, and interactions).
- Granted a U.S. Department of Defense Top Secret security clearance.

Apple, Novi, MI — *Sales Specialist*. Built Metrics for Product Zone, an Apple Retail metrics app (App Store) *Summer 2021*

SELECTED PROJECTS & SOFTWARE

- **Fireteam** — Apple WWDC26 Swift Student Challenge Winner (2026). Drag-and-drop multi-agent system builder for LLMs with draggable "safeguard nodes" that teach LLM-safety concepts. SwiftUI; runs fully offline.
- **DYTM** — Deterministic verification layer for LLM code generation (2026). Property-based-test contracts between user intent and generated code (Python, LangGraph, Hypothesis). Evaluated on HumanEval (+1.8 pp pass@1) and a 50-task agent-to-agent intent-fidelity study showing PBT contracts are a lossy channel for intent.

- **Pixel Pursuit** — Apple WWDC23 Swift Student Challenge Winner (one of 375 worldwide; invited attendee) (2023). Augmented-reality game about computer forensics. SwiftUI, RealityKit.
- **One Step Ahead** — Apple WWDC22 Swift Student Challenge Winner (2022). Core ML drawing game that trains on player sketches; shipped to the App Store.
- **CORE** — Co-founder & technical lead (2022–2025). Clinical-research access platform (SwiftUI, React/Next.js). 1st place, Michigan Ross Business+Tech Innovation Jam (\$7,000); U-M Center for Entrepreneurship Fuel Award (\$7,500).
- Live on the App Store: Fireteam, Chorale, Liftgraph, Metrics for Product Zone, StreakPal, and The Mood Meter!

TEACHING EXPERIENCE

University of Miami, Department of Computer Science, Coral Gables, FL

Aug 2025 – present

Teaching Assistant

- Fall 2026: CSC 220 (Computer Programming II), CSC 545/645 (Introduction to Artificial Intelligence), and a special-topics course in robotics.
- 2025–26: CSC 220 (Computer Programming II) and CSC 317 (Data Structures and Algorithm Analysis).

University of Michigan, Computer Science & Engineering, Ann Arbor, MI

Jun 2024 – Aug 2024

Development Instructional Assistant — EECS 298: Social Consequences of Computing

- Designed new assignments, rubrics, and tutorials, and integrated social-computing topics into auto-graded Python homework as the course moved from an elective to a core CS class.

HONORS & AWARDS

Apple Swift Student Challenge Winner — three-time winner

2022, 2023, 2026

Center for Entrepreneurship Fuel Award (\$7,500), University of Michigan College of Engineering

Feb 2024

TCNewTech Funding Competition Finalist, 20Fathoms (Traverse City, MI)

Apr 2024

Business+Tech Innovation Jam, 1st Place (\$7,000), Michigan Ross

Nov 2022

University Honors (2022, 2023) and Dean's List (2021–2023), University of Michigan

2021 – 2023

LEADERSHIP

Zeta Pi Professional Technology Fraternity — Head of Projects & Tech, 2024 (executive board, 97 members): taught React Native workshops and managed member app projects.

Michigan Sport Business Conference — Director of Team Relations, 2024; Creative Manager, 2023: grew Instagram following 45% toward a record 1,105 attendees.

SKILLS

Languages: Python, Swift, C/C++, Rust, JavaScript

ML & evaluation: classifier training/evaluation, LLM evaluation & annotation pipelines, inter-rater reliability, pre-registered studies, Core ML

Frameworks & platforms: SwiftUI, RealityKit, React Native, Next.js, Firebase, Qt, Git; App Store & enterprise distribution

REFERENCES

Available on request.