Devin Bowler

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Education

- **University of Massachusetts Amherst** — Amherst, MA
  Bachelors of Science in Computer Science — *Jan. 2023 – May 2026*
  Relevant Coursework: Algorithms, Web Programming, Computer Architecture, Operating Systems, Linear Algebra

Experience

- **Research Intern** — San Marcos, TX
  Texas State University — *May 2025 – Aug. 2025*
  Technologies Used: Python, C# (Unity), MQTT, FastAPI
  - First author of an accepted conference paper, "Simulation-Based Smart Home Architecture for Autism Support Using CSI-Based Movement Detection," leading research design and writing efforts with a five-member team.
  - Simulated a Unity apartment that ray-traces Wi-Fi propagation to synthesize CSI data, then built a CNN-BiLSTM pipeline and FastAPI + MQTT service for real-time behavioral classification and smart-home actuation.
  - Produced **450k+ labeled samples** and achieved **83.6% multi-class accuracy**, demonstrating privacy-preserving detection of simulated movement with sub-second end-to-end latency.
- **Research Intern** — Houston, TX
  University of Houston — *May 2024 – Aug. 2024*
  Technologies Used: Python, TensorFlow, Scikit-Learn, Pandas, NumPy, Flask, HuggingFace
  - Led a research project focused on integrating and optimizing Large Language Models to elevate code security analysis, achieving significant improvements in vulnerability detection.
  - Explored various open-source models, including Gemma, LLaMA, RoBERTa, and Phi, applying a sentiment analysis approach to assess generative model outputs, ultimately selecting RoBERTa for its superior classification performance in detecting vulnerable code.
  - Fine-tuned a RoBERTa model for binary vulnerability classification, achieving **96% accuracy** and **0.91 F1 score**, demonstrating clear improvements over base prompting approaches.

Technical Skills

Languages:	Python, JavaScript, C++, C#, Java, SQL
Frameworks & Libraries:	React, Node.js, Express.js, Flask, Pandas, NumPy, TensorFlow, PyTorch
Databases:	MySQL, MongoDB, SQLite
Developer Tools:	Git, Docker, AWS (S3), Postman, Jupyter, VS Code, Neovim, Netlify

Projects

- **ARCH-16 — Systems / Computer Architecture** — Feb. 2025 – May 2025
  University Project
  - Designed a custom 16-bit Instruction Set Architecture (ISA) in C with 16 general-purpose registers, memory encryption support, and simulated pipelining and caching.
  - Built a GUI-based simulator in PyQt that communicates with the C-based ISA simulator via a Flask API, supporting file uploads, step execution, and breakpoint debugging.
  - Developed an instruction encoder and memory model for arithmetic, branching, and memory operations with real-time display of registers, DRAM, cache, and pipeline stages.
- **Quibly — Full-Stack Task Management App** — Mar. 2024 – Present
  Personal Project
  - Utilized the MERN (MongoDB, Express, React, Node) stack to develop a comprehensive management application, enabling users to track and organize tasks and schedules.
  - Integrated RESTful APIs and implemented MongoDB storage solutions to ensure seamless task handling, real-time updates, and consistent user experience.