Ben Schwartz

Graduate Student at the University of Michigan
B.S. in Computer Science

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EDUCATION

- **University of Michigan College of Engineering** — *January 2024 – May 2025 (Expected)*

  Master of Science in Computer Science — Ann Arbor, MI
  - **Relevant Coursework**: Cybersecurity, Networks, Compilers, Distributed Systems, Ethics

- **University of Michigan College of Literature, Science, and the Arts** — *August 2020 – December 2023*

  Bachelor of Science in Computer Science ; GPA: 3.83 / 4.00 — Ann Arbor, MI
  - **Relevant Coursework**: Cybersecurity, Data Structures and Algorithms, Computer Architecture, Operating Systems, Computer Networks, Web Systems, Computer Science Theory, Machine Learning

EXPERIENCE

- **Hyland Software** — *May 2023 – May 2024*

  Software Developer Intern — Westlake, OH
  - Designed and implemented an internal certificate manager, consisting of a 4kLOC .NET 6 web app with a REST API and several C# microservices that communicate with Confluence, Jira, and Boomi processes
  - Extensive use of Bitbucket with Jira integrations as well as build pipelines with Jenkins and Octopus Deploy
  - Contributing to several IS processes in an Agile environment within the IS Services Delivery team

- **University of Michigan** — *August 2022 – Present*

  Teaching Assistant & Graduate Student Instructor — Ann Arbor, MI
  - Graduate Student Instructor for *EECS 388: Introduction to Computer Security*, teaching fundamentals of security for a 350+ student elective; coordinating with the lead professor J. Alex Halderman and staff to design the projects, exams & lectures; maintaining the course's EC2 instances, Docker containers, VMs, & GitHub repositories
  - Teaching Assistant for *EECS 281: Data Structures and Algorithms*, taught concepts of data structures and algorithms for the 1000+ student core computer science class by holding lab sections & office hours, wrote exam questions; maintained the course autograder, a 20kLOC code base consisting of Perl, Python, MySQL & PHP

- **Aclara Technologies** — *May 2022 – May 2023*

  Software Development Engineer Intern — Solon, OH
  - Developed multiple full-stack Python applications to support the shortcomings of the existing production flow
  - Worked with principal systems engineers in St. Louis to redesign the meter delivery process to better integrate the applications while following FCC regulations, leveraging Tkinter, Pandas, Azure DevOps, Fusion & IEC Manuals

PROJECTS

- **Network File Server** – *C++20, Boost*
  - Implemented a multithreaded file server that can accept up to 30 concurrent TCP connections from clients
  - Used Boost's upgradable reader/writer locks to maximize concurrency to handle slow network and disk I/O

- **AI Chatroom** – *JavaScript, Node.js, Vite*
  - Developed a chat app that allows users to join rooms and share text and images with other users, including an AI bot pretending to be the persona Saul Goodman, leveraging the GPT-4 API and chatengine.io
  - Integrated the authentication system with a personal REST API, allowing users to easily login to several apps

- **Personal REST API** – *Python, TypeScript, Flask, MySQL, **Live***
  - Created a large Flask app that consists of a Swagger UI, JWT authentication scheme and a MySQL database
  - Serves many endpoints for portfolio data, a web shop, login page, GPT-4 chat apps, media storage apps, and more

- **Video Streaming Proxy with a CDN** – *C, Python*
  - Developed an HTTP proxy for a video server, enabling adaptive bitrate streaming for up to 8 simultaneous clients; the system dynamically adjusts the streaming quality based on real-time throughput calculation of the client
  - Designed a DNS system with a geographically-aware load balancer to direct clients to the optimal video server

- **SSH and Telnet Honeypot** – *Docker, Python*
  - Created a medium interaction SSH and Telnet Cowrie honeypot for the cybersecurity course I TA for. Ships with a customizable file system along with an API and UI to view actions performed by the students
  - Build and deploy processes fully automated with Docker Compose and GitHub Actions

- **Instagram Clone** – *JavaScript, Python, React, Flask, AWS, **Live***
  - Built a web app where users can post content and engage with other users; deployed with AWS Elastic Beanstalk

See **portfolio** for comprehensive list of all projects

SKILLS & MORE

- **Languages**: Python, JavaScript, C/C++, C#, Java, Swift, Bash, TypeScript, TeX, Rust, Go
- **Tools / Technologies**: Git, Docker, AWS, SSMS, Jenkins, Kubernetes, Postman, Windows, Unix, MacOS, Jira
- **Certifications**: Udemy *2023 Complete Web Development Bootcamp*; Coursera *Python & SQL Data Engineering*
- **Random**: BW Prog. Comp. 4th Place, I ♥ Ubuntu, Neovim ≥ VSCode, *Better Call Saul* > All Else