SHANNON LAU

Software Engineer

→ shannonlau.com
→ shanlau@umich.edu
→ github.com/slau8
→ linkedin.com/in/shanlau

EDUCATION

University of Michigan
2022 B.S.E. Computer Science
Multidisciplinary Design Minor
Summa Cum Laude
4.00 Major GPA

RELEVANT COURSEWORK

EECS 598 Engineering Interactive Systems
EECS 497 Human-Centered Software
EECS 485 Web Systems
EECS 482 Operating Systems
EECS 481 Software Engineering

SKILLS

Languages
Python, C++, SQL, Java, JavaScript
Typescript, HTML5, CSS, Sass

Frameworks & Libraries
Dataflow, Protobuf, Flask, React, Angular

Tools & Platforms
Git, Docker, Google Cloud Platform
Jira, PostgreSQL, MongoDB

FEATURED PROJECTS

Touch Connect Four
Acrylic, multi-touch pad device that optically translates finger contours and movements into gestures for digital connect four with Python OpenCV.

UFO
Custom-built printed circuit board payload launched 26,822 meters into the stratosphere to gather pressure, temperature, humidity, UV index, and GPS data for weather analysis.

HONORS

AT&T OxyGEN Scholar Award
CAPITAL ONE Grace Hopper Scholar
CAPITAL ONE SWE Summiteer Recipient
MICHIGAN Marian Sarah Parker Finalist
MICHIGAN EECS Scholar Award
MICHIGAN Dean's Honor List
MICHIGAN University Honors

EXPERIENCE

Cavnue — Software Engineer
MARCH 2023 – JULY 2025 // DETROIT, MI

- Architected a digital twin of real roads by re-designing the C++ simulation engine and Python multi-processing pipelines for videos, geospatial data, road user kinematics, and other ecosystem artifacts — optimizing runtime performance up to 12x faster.
- Collaborated closely with software architects to design and build unified Protobuf and Pub/Sub schemas, connecting ETLs with the BigQuery data warehouse.
- Validated end-to-end system and data integrity by conducting road testing, tracking data lineage, root-causing bugs, and engaging with data contributors.

Meta — Software Engineer Intern
AUGUST – NOVEMBER 2021 // PITTSBURGH, PA

- Implemented lossy data compression algorithms in C++ to optimize 3D face and gaze capture, supporting VR telepresence for Reality Lab's Codec Avatars.
- Developed Python-based benchmarks to quantitatively analyze algorithm differences in speed, space, and image quality, and integrated the most optimal into the pipeline.

Microsoft — Software Engineer Intern
MAY – AUGUST 2021 // SEATTLE, WA

- Pioneered the development and testing of Microsoft Lists' inaugural front-end features for content editing and grouping, with React, Typescript, and Sass.
- Debugged telemetry issues to optimize median reliability to 99.99%, and visualized performance and resilience metrics to provide leadership with first-ever app insights.

Comau — Software Engineer Researcher
JANUARY – DECEMBER 2020 // ANN ARBOR, MI

- Architected and implemented a 3D bin-packing heuristic in C++ to robotically automate and identify items' optimal placement locations, achieving 75% fill capacity.
- Crafted a command-line interface and intuitive graphical interface for users to visualize step-by-step item placements and explore future potential arrangements.

Capital One — Software Engineer Intern
JUNE – AUGUST 2020 // CHICAGO, IL

- Developed a AWS Lambda back-end API with Python to transform 3,000+ daily customer calls into visualizable audio data.
- Built and integrated experience-elevating features into the audio player platform with AngularJS and D3.js, including: dual-speaker waveform visualization to distinguish the active speaker, dynamic transcript interface, and smart audio-scrubbing.

New York City Transit — Data Analyst Intern
JUNE – AUGUST 2018 // NEW YORK, NY

- Aggregated and analyzed daily streams of transportation accident data from internal & external claims and police reports, using NYC Transit's internal software.
- Extracted critical patterns and data points to proactively escalate issues affecting agency operations and the safety of city riders.

TEACHING & INVOLVEMENT

University of Michigan — Teaching Assistant for Data Structures & Algorithms
AUGUST 2020 – MAY 2021 // ANN ARBOR, MI

- Assisted in teaching 900+ students by instructing labs, facilitating class forums, designing exams, and holding office hours to guide students one-on-one. In C++.
- Deepened students' understanding of best coding practices, debugging tools, and core concepts of stacks, queues, graphs, hash tables, and dynamic programming.

University of Michigan Ultimate Frisbee
SEPTEMBER 2018 – MAY 2022 // ANN ARBOR, MI

- Mentored and competed alongside driven women on a nationally-ranked team.
- Gear Coordinator: Designed jersey kits and apparel for 50 players and coaching staff.