

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

Libraries & Frameworks

Protobuf, Flask, React, AngularJS, Vue

Tools & Platforms

Git, Google Cloud Platform, Docker, Jira
BigQuery, 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 – PRESENT // DETROIT, MI

- Architect a multi-processing digital twin of real, multimodal roads by re-designing the C++ simulation engine and Python pipelines for videos, maps, vehicle kinematics, and other ecosystem artifacts — optimizing runtime performance up to 3.5x faster.
- Collaborate closely with algorithm engineers and platform architects to design and align on unified Protobuf data formats across multiple, interwoven pipelines.
- Conduct comprehensive live road testing by performing vehicle maneuvers and traffic scenarios, troubleshooting software bugs, and providing end-to-end validation.

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.