

SOPHIA PUNG

SOFTWARE DEVELOPER AND ASPIRING NANOENGINEER

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Software developer with hands-on experience in firmware, full-stack, and protocol design across diverse projects. Proven ability to deliver production-ready solutions using C++, Python, and modern web technologies in both academic and industry settings. Demonstrates strong fundamentals in object-oriented design, data structures, and agile software practices, ready to enhance cloud solution development.

EDUCATION

University of St. Thomas, St. Paul, Minnesota September 2023-May 2027 (est.)
Bachelor of Science in Electrical Engineering, Air Force ROTC '24, '22-'24 Taco Bell Live Más Scholar

Techtonica, Berkeley, California July 2022-December 2022
Six-month long coding bootcamp. Full-time, project-based, collaborative software engineering program in the PERN full-stack, with a focus on Javascript.

- Weekly building a full-stack web application ground up using React, Express, Node, PostgreSQL, JavaScript, HTML, CSS, React Testing Framework.

University of Minnesota, Minneapolis, Minnesota September 2020-May 2022
Dual enrollment student while enrolled at Robbinsdale Armstrong High School.

- Coursework: MATLAB Programming for Biomedical Engineers, Cellular and Molecular Biology, Multivariable Calculus, General Chemistry II, Introduction to Programming (Python), Political Philosophy.

WORK EXPERIENCE

Neurostimulation Device Development - Orser Lab, St. Paul, Minnesota May 2025-Present
Leading firmware development for the nRF5340 SoC: migrated from USB-DAP programming to a custom SWD-pin workflow, configuring SWDIO/SWCLK/RESET connections.

Center for Microgrid Research, St. Paul, Minnesota June 2024-December 2024
Working under a US Army grant, I designed and implemented a protocol between the C++ and Python codebases of the OpenDDS data distribution system for a microcontroller and all of the devices connected to it, including but not limited to batteries, relays, generators, and electric vehicle chargers.

- Integrated the ZeroMQ and OpenDDS libraries into both the C++ and Python code on the Raspberry Pi 5 and on the Microgrid controller (a PC).
- Implemented the TMS (Tactical Microgrid System) Army ERDC design into the local micro grid system using a Quad Relay. Successfully created a UI to send TMS commands from the dashboard, through OpenDDS, to the stack converter, and then translated the commands into Modbus using ZeroMQ to write and read relay states.

Indeed.com, San Francisco, California January 2023-July 2023
Software Developer Intern for 24 weeks on a full-stack development team on the Structured Interviews team, responsible for building the interviewer platform for employers.

- Delivered the Question Bank Tool to production, enabling authorized users to manage interview guide questions, and demonstrating strong competencies in React, TypeScript, and REST API modifications.
- Addressed 13 development tickets by incorporating bulk upload support via the Papaparse API, refining REST API endpoints, designing front-end components to display competencies and occupations, and authoring comprehensive tests. Helped build the new hire onboarding wiki and identified the bugs of Indeed Frontend Library as well as leading a product bug bash and daily standups.

Golden Valley Country Club, Golden Valley, Minnesota March 2016-September 2021
• Started caddying at age 12. Over the course of career, caddied over 800 hours.
• Increased average/hr wage from \$14.25/hr to \$35/hr+ over career through consistent performance and dedication.

TECHNICAL PROJECTS

Monolith BCI: Led a group of 5 engineers to design a PCB and start running experiments on noise filtering, signal processing speed, and data collection. Our board takes input data from 8 electrodes, and outputs the data over SPI so that we can process it with a neural network. Over \$5,000 in private funding (monolithbci.com).

Automated Sandwiching: 1st place Alignment Jam project \$1000 prize. Implemented an automated system, simulating a human evaluator of LLM-generated responses, evaluating our system on 163 training examples from Multi-task Language Understanding (MMLU) with 2 different oversight techniques, used 2 OpenAI models.

Astrogate: Led development and individually created a prototype of the first AI chatbot for all U.S. ROTC branches in conjunction with the U.S. Space Force's Space Training and Readiness and Command (STARCOM). Led development of the i5 website chatbot to assist 1000+ members across 67 squadrons with document-cited answers. Integrated Zilliz vector database to reference official USAF/USSF documents in real-time queries. Developed backend using Python and Node.js and responsive frontend with JavaScript, HTML, CSS.

Programming Languages: React, Javascript, Typescript, Python, C++, Kotlin, MATLAB, PERN Stack, Full-Stack Dev.