

GABRIEL WOMELSDORF

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SUMMARY

Computer Engineering student (B.S. 2027) specializing in embedded systems, PCB design, power delivery, and applied hardware research. Owns technical work from system architecture and construction through qualification and experimental design, alongside 4+ years of production software experience progressing from intern to part-time lead engineer at Core4ce.

EDUCATION

Christopher Newport University

Newport News, VA

B.S., Computer Engineering, *expected 2027*; Minor, Mathematics

CNU Summer Scholars Program, 2026

SKILLS

Languages: C, C++, Python, Java, C#, Z80 Assembly

Embedded: Zephyr/NCS, ESP-IDF, Nordic

nRF52/nRF54, ESPHome

Hardware/Systems: PCB Design (KiCad/Altium), Power Delivery, PMBus, SystemVerilog, Hardware Bring-Up

Software/Tools: Docker, Apache NiFi, Django, Git, AWS

PERSONAL RESEARCH & PROJECTS

- **Tardis Embedded-AI Development Kit:** Proposed and secured Core4ce grant support through CNU Summer Scholars for a modular, offline embedded-AI platform that makes edge-AI workflows approachable for nontechnical users. Owned end-to-end system architecture and implementation across a reusable compute module, interchangeable carrier boards, embedded firmware, and developer tooling; independently assembled and brought up the prototype hardware.
- **Air Sentry Neo:** Independently owned an indoor air-quality research platform from architecture, electronic and mechanical design, PCB layout and assembly, construction, firmware, and sensor integration through qualification. Owned experimental design and manuscript development for active unpublished additive-manufacturing research; technical methods and results remain limited while the work is unpublished.
- **Z80 Microcomputer:** Designed an 8-bit Z80-based microcomputer and programmed a minimalist operating system in Z80 assembly supporting basic I/O and memory routines.

ENGINEERING EXPERIENCE

Core4ce

Reston, VA

Software R&D Intern → Software Engineer → Lead Software Engineer (part-time)

Jun 2022 – Present

- Designed and implemented a production data pipeline from scratch in Apache NiFi on AWS, including custom Java processors, IAM-compliant AWS integrations, and reconfigurable routing that enables data-flow changes without code changes.
- Led end-to-end development of Cyberscape, owning architecture decisions, sprint planning, client-facing deployments, and mentorship of junior engineers.
- Led a two-month testing overhaul for a previously untested subsystem, substantially increasing coverage and bringing the component to a production-ready state.
- Expanded data-forensics capabilities with containerized Django services and deployed an AWS honeypot to support threat research.

Christopher Newport University

Newport News, VA

Student Researcher (part-time)

Nov 2023 – May 2025

- Conducted exploratory research using CNC routing machines to fabricate table-sized PCBs for the Super BigByte project.
- Assembled, installed, and documented key power-delivery systems for the coordinate detector's photomultipliers.

LEADERSHIP & INVOLVEMENT

The Captains Workshop, CNU

President

Feb 2023 – Present

- Founded and lead CNU's 3D-printing club; organize hands-on workshops and shared technical resources for students.

Dean's Advisory Board, CNU School of Engineering

Member

Oct 2023 – Jan 2025

- Served as liaison between students and the Dean, advocating for student needs and proposing solutions to issues within the school.