

CHARLOTTE A. LARSON FREEMAN



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Western Washington University, Bellingham, WA
Bachelor of Science: Computer Science, March 2026

Relevant Coursework: Operating Systems, Compilers, Computer Networks, Algorithms, Computer Vision, Data in AI
Languages & Tools: Java, Python, C, SQL, JavaScript; Git, Bash, OpenCV, ImageJ, IntelliJ, VS Code, LaTeX

Technical Experience

Research and Development Intern (Software Development), June 2025 - Present
Silfab Solar Inc., Burlington, WA

- Developed image processing software to analyze alignment on Metal Wrap Through solar cells, achieving **0–3 pixel accuracy on 16K images** (0.05 mm accuracy of 166 mm object measurements, error rate due to image quality)
- **Produced the first data-driven diagnostic tool in 2+ years of inconclusive visual inspection** by enabling engineers to isolate sources of alignment error
- Introduced versioning to a multidisciplinary team, replacing ad hoc sharing with documented, reproducible Git workflows
- Applied prompt engineering techniques from concurrent coursework and research to develop collaboratively with AI tools, writing core logic independently, then iterating with AI on design decisions while maintaining full QA

Undergraduate Researcher, January 2025 - December 2025

Western Washington University College of Science and Engineering, Bellingham, WA

- Designed, tested prompts, and analyzed LLM outputs with a team of faculty, undergraduates, and graduate students
- Co-developed a coding schema used by the team to annotate academic literature, label LLM outputs, and evaluate model bias; contributing a reusable framework across multiple stages of an active research project

Projects

Financial and Emissions Reporting (Silfab Solar, Current Project):

- Built a **document-agnostic PDF parsing pipeline handling US and Canadian utility billing** documents, accounting for regional naming conventions and bills with **internally conflicting data fields**
- Calculated emissions figures from parsed data with engineering formulas; UI for viewing, editing, and exporting results
- Added configurable UI settings (configurable emissions factors and units, reduced motion, text scaling, high contrast, alternative fonts) on own initiative, **treating an internal tool with the same care as a user-facing product**
- Implemented supervisor and Nginx with health reporting on internal VM to privately host the website

16-Bit Compiler:

- Implemented a 16-bit **microprocessor simulation** in C based on provided specifications, including memory management, instruction set behavior, and trap handling--gaining **hands-on experience with system architecture and low-level data flow**
- **Successfully completed as a pre-major, while many did not**, demonstrating persistence & problem-solving under pressure

Quaternion Rotation & Interpolation Demo ([Live Demo](#)):

- Collaborated with a graduate and undergraduate teammate to design an interactive educational tool visualizing 3D quaternion-based rotations; built animated scenes, visualized gimbal lock behavior, and core UI features

Other Experience

Student Ambassador, September 2024 - March 2026

Western Washington University, Bellingham, WA

- Selected as **1 of 25 Student Ambassadors representing 14,651 students**
- Worked directly with university president and board of trustees; supported event for first donor-funded building on campus

Manager / Summer Camp Director / Teacher, December 2022 - September 2024

Bellingham + Skagit Coding and Robotics Club, Bellingham, WA

- Developed curriculum in JavaScript, Scratch, and GameMaker; taught programming and robotics to 100+ K–8 students
- **Trained/managed 20+ instructors**; handling staff conflicts, setting performance standards, and introducing documentation

Au Pair, August 2019 - March 2020

Au Pair World, Karlsruhe, Germany

- Childcare and Montessori activities in a cross-cultural family; **organized moving abroad while a senior in high school**