

## Caleb Hu

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### EDUCATION

#### University of Washington

*Bachelor of Science in Computer Science, Concentrations in ML & Data Science; GPA: 3.82/4.00*

Seattle, WA

Expected Jun 2027

**Key Coursework:** Machine Learning, Systems Engineering, Data Structures & Parallelism, Algorithms, Hardware/Software Interface

### TECHNICAL SKILLS

- **Languages (in order of proficiency):** Java, Python, JavaScript, TypeScript, HTML5, CSS, C, C++
- **Frameworks:** React.js, Node.js/Express, Next.js, Flask, Django, Tailwind CSS, JUnit, Java Swing, scikit-learn
- **Developer Tools:** Unix/Linux, Postman, Docker, Selenium, Supabase, Firebase, Clerk, PostgreSQL, MySQL, Vercel, Figma
- **Currently Learning:** ML: R, PyTorch, TensorFlow, Matplotlib, **Full-stack:** Angular, AWS EC2, Kubernetes, C#, CI/CD

### WORK EXPERIENCE

**Makeability Lab** | *Python, PyTorch, Selenium, OpenAI GPT-5, Grounded SAM, OpenCV, Hunyuan 3D-2*  
*Researcher*

Seattle, WA

Jun 2025 – present

- Engineered **PreviewAR**, a pipeline using **PyTorch**, **Grounded SAM**, and **GPT-5** that converts 2D products into **scaled 3D** models for AR visualization; to be presented at **UIST 2026** (ACM Symposium on User Interface Software and Technology).
- Developed a **modular web scraping system** with **Selenium** that extracts product specs from Amazon/eBay, uses **GPT-5 vision models** to select optimal product images, and applies **ISNet + Stable Diffusion** for background removal and image enhancement.

**Mastertech.ai** [VC-backed AI auto-repair startup] | *TypeScript, Redux, REST APIs, DynamoDB*  
*Software Engineer Intern*

Kirkland, WA

Jul 2025 – Sep 2025

- Built an **LLM unit-testing/evaluation system** that raised input classification accuracy by **3%** by exposing edge-case failures.
- Designed and shipped a prompt-template feature (**TypeScript/Redux, REST APIs**) to retrieve, display, and store National Highway Transportation and Safety Association (NHTSA) recall data, improving diagnostic transparency for **100+** technicians.

### TECHNICAL PROJECTS [ML & FULL-STACK ENGINEERING]

**CodeStepByStep.com** | *TypeScript, MySQL, JavaEE, LangChain4j, ChromaDB*

*A free web application that helps students at the middle school, high school, and university levels learn fundamental coding concepts.*

- Devised and scaled a **GPT-powered teaching assistant** to offer coding support for **95,000+ students** and **teachers** nationwide.
- Programmed a **TypeScript throttle** with a countdown to prevent spamming and limit submissions for **1,000+** practice problems.

**Consulting Association's LinkedIn and Email Bot (CALEB)** | *React.js, Flask, Docker, Celery, RabbitMQ/Redis, PostgreSQL*  
*Proprietary outreach automation software for emailing internal memos to members and sourcing clients for consulting projects.*

- Authored a full-stack outreach automation platform (**React website + Flask backend**) used by **4-6 officers** to send internal emails to a **40+ student consulting organization** and **source clients**, reducing manual email time by **97.2% (6 hours to 10 minutes)**.
- Implemented **Gmail OAuth**, secure contact directory, and **Celery-based scheduled email queue (RabbitMQ/Redis)**, enabling reliable, large-scale personalized email campaigns across **3,900+ contacts**; helped source **13 high-profile consulting clients**.

**NFL Team Score Prediction Model** | *Python, Polars, scikit-learn, Pandas, NumPy, Jupyter Lab*

*A linear regression model that predicts the scores (points per game) of the remaining matchups in the 2025-26 NFL season.*

- Architected a Python data pipeline using **nflreadpy** and **Polars** to ingest **11 seasons** of play-by-play data and compute **9 team-level features** (e.g., 20+ yard offensive plays, redzone TD%); preprocessed features with **MinMaxScaler** and **one-hot encodings**.
- Trained and optimized a scikit-learn model, achieving an **RMSE of 1.92 points** on **scoring averages** in the season's last 2 weeks.

### LEADERSHIP

**Paul G. Allen School of Computer Science and Engineering**  
*Undergraduate Teaching Assistant*

Seattle, WA

Jan 2026 – present

- Supported **300+** students in **introductory Java course series** by leading **weekly labs** and teaching **core programming concepts**.

**UWCA (University of Washington Consulting Association)**  
*Technical Director; Senior Consulting Analyst*

Seattle, WA

Mar 2025 – present

- [See **CALEB**] Built a pipeline that automated internal communication and client sourcing processes for a **10-member exec team**.
- Redesigned the UWCA website, leveraging **SEO** and **UX** principles to generate a **176%** increase in unique visits within **30 days**.