Donovan Thach

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Education

Oregon State University — Corvallis, OR
Bachelor of Science in Computer Science — *Sep. 2024 – June 2028*

- **GPA:** 3.63 | **Focus:** AI / ML
- **MECOP:** Selected for OSU's Multiple Engineering Cooperative Program, which places students in two paid 6-month industry co-ops, beginning Spring 2027
- **Honors:** Finley Academic Excellence Scholarship; OSU Honor Roll (5 terms)
- **Relevant Courses:** Data Structures, Algorithms, Operating Systems, Software Engineering, Computer Architecture, Web Development, Linear Algebra II, Calculus III; in progress: Databases, Machine Learning

Experience

Handshake AI Fellowship — Feb. 2026 – Present
AI Model Evaluation Fellow — *Remote*

- Evaluated 500+ AI model outputs across multimodal tasks, including audio-visual retrieval and video understanding, through pairwise ranking and written rationales
- Annotated video with a hierarchical (L1/L2/L3) action taxonomy, producing labeled preference data used by external AI labs to fine-tune models

Projects

Oral Disease Analysis Model | *Python, PyTorch, YOLO11, SLURM, ONNX* | GitHub — Nov. 2025 – Present

- Built an end-to-end object detection pipeline (YOLO11, PyTorch) for 6 oral disease classes, merging 8 public datasets (∼6,100 photos) through a 4-stage remap, merge, split, and verify process
- Found and fixed two train/test leaks that inflated test mAP@50 to 67%: regrouped splits by source photo, then removed 788 near-duplicate photos (34% of test photos had near-copies in training), adding an automated leak check and locked test-set manifest for an honest 43% test mAP@50 baseline
- Traced a 20-point validation/test gap in one class to misplaced and missing labels with a per-source audit script
- Ran training and evaluation as SLURM batch jobs on OSU's HPC cluster and exported models to ONNX

NavigAid: AI Smart Cane | *C++, Arduino, Python, YOLOv8, MiDaS* | GitHub — May 2026

- Built an edge AI obstacle-avoidance cane for the visually impaired on a 3-person team, placing 2nd in the BeaverHacks 2026 Hardware Track; fused YOLOv8n and MiDaS depth with ultrasonic, laser, and tilt sensors, prioritizing ultrasonic readings within 80 cm
- Wrote the Arduino motor-steering firmware and serial link to the Raspberry Pi; wired most of the hardware
- Kept laser and tilt sensing in the final build despite a plan to cut it, reworking the wiring 8 hours before the deadline with ultrasonic sensors as a fallback

GhostNet | *ESP32-S3, PyTorch, FastAPI, Snowflake, React* | GitHub — May 2026

- Built a WiFi-only, camera-free elderly monitoring system on a 3-person team, streaming Channel State Information from two ESP32-S3 boards into a FastAPI → Snowflake → React pipeline
- Trained the team's PyTorch CNN fall classifier and LSTM heart and breathing rate estimator on CSI data, led on-site collection of labeled fall and vitals sessions, and streamed live CSI from both boards

Lift Log | *React, TypeScript, Express, MongoDB* — Jan. 2026 – Mar. 2026

- Built a full-stack workout planner on a 7-person team in 1–2 week sprints, earning the top score in the course
- Owned the accounts feature, co-writing the user model with bcrypt password hashing; built the multi-week planner, exercise editing with validation, and the request class the planner uses to call the backend

Technical Skills

Languages: Python, C/C++, SQL, JavaScript, TypeScript, x86-64 Assembly, HTML/CSS
Frameworks: React, React Native, Flask, Node.js, FastAPI, Astro
Developer Tools: Git, GitHub Actions, Linux, SLURM, Vite, npm, Vercel
Libraries & APIs: PyTorch, YOLO11, ONNX, NumPy, pandas, Snowflake, Firebase, OpenAI API, Three.js