Travis A. Wessman Jr.

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Education

- **University of Massachusetts Dartmouth** — North Dartmouth, MA
  Bachelor of Science — Computer Science (Artificial Intelligence Concentration) — *Expected May 2028*
  Major GPA: 3.73/4.00
  Relevant Coursework: Algorithms & Data Structures (in progress), Software Specification & Design, Computer Organization & Design, Computing Systems, Object-Oriented Programming I & II, Procedural Programming (C)

Technical Experience

- **UMass Dartmouth School for Marine Science & Technology (SMAST)** — New Bedford, MA
  Research Intern — Digitizing & Computer Vision, Marine Fisheries Field Research Group — *Sep 2026 – Present*
  - **Ground-Truth Annotation**: Annotate and identify sea scallops in seafloor drop-camera survey imagery, producing the manually labeled ground-truth dataset used to evaluate an automated computer vision detection model.
  - **Model Validation & Bias Testing**: Compare model detections against manual annotations to assess accuracy, speed, and systematic bias, supporting the lab's transition from fully manual image processing to automated detection in fisheries surveys.
- **New Bedford Research & Robotics (NBRR) × Sedna Robotics** — New Bedford, MA
  Software Engineering Intern — *Jun 2026 – Aug 2026*
  - **Multi-Source Data Pipeline**: Built a Python pipeline fusing NOAA BlueTopo rasters, Teledyne multibeam surveys, and live Ping2 sonar from an autonomous surface vehicle into one deviation model of ∼2M depth points, handling CRS reprojection (pyproj, rasterio), cKDTree sampling, and tidal reduction to MLLW via the NOAA CO-OPS API.
  - **Anomaly Detection**: Measured a 0.73 m mean depth offset between public NOAA charts and high-resolution survey data using gridded z-score thresholding, flagging anomalies for hydrographic review by partner Absolute Ocean.
  - **Interface & LLM Assistant**: Shipped a Streamlit + pydeck app for point, area, and deviation-grid queries with .xyz/CSV point-cloud export and JSON metadata; added a natural-language assistant that dispatches to deterministic pipeline tools instead of generating values, backed by a pytest suite.

Projects

- **Missed-Call Capture System — Freelance (Wessman Systems) | Python, Flask, SQLite, Telnyx**: Designed and deployed a production service for client Alternative Heating Solutions that captures missed calls via Telnyx Call Control webhooks, filters spam, and surfaces leads in a mobile dashboard with click-to-call, status tracking, and notes. Flask app factory with blueprints and a service layer, signed webhook verification, served by Gunicorn. **Live in production since March 2026.** (Jan 2026 – Present)
- **The Bam Ghost Protocol — AUV Simulation | MATLAB, Simulink**: Developed and pitched an autonomous underwater vehicle simulation for ghost gear detection, built over 72 hours with MathWorks mentorship. **Award: 1st Place — Courage Builder x UMass Dartmouth Blue Tech Externship.** (Mar 2026)
- **Multi-Agent Research Assistant | Databricks, LangChain, Hugging Face, RAG**: Co-developed a research assistant automating literature review across arXiv and PubMed. Built the multi-agent coordination layer for paper analysis, citation extraction, and citation-grounded brief generation using LangChain, Hugging Face models, and vector search on Delta Lake, MLflow, and Unity Catalog. (Oct 2025)
- **NutriGrove — Campus Nutrition Platform | Python, Firebase, APIs**: Co-developed a system aggregating dining and nutrition data from multiple university sources into a cloud database; owned the Firebase infrastructure, Python web scraping, and recommendation logic. **Award: 2nd Place — Best Use of AI to Validate User Interest, YCONIC 2025 Hackathon.** (Jan 2025)

Technical Skills

- **Languages** — Python, SQL, C, MATLAB
- **AI & ML** — LLMs, RAG pipelines, tool-calling agents, computer vision evaluation, LangChain, Hugging Face, Ollama
- **Backend & Data** — Flask, FastAPI, PostgreSQL, SQLite, Firebase, NumPy, Pandas, pyproj, rasterio
- **Tooling** — Git, GitHub Actions, pytest, Linux, Gunicorn, Databricks, MLflow, Streamlit, REST APIs, webhooks

Additional Experience

- **University of Massachusetts Dartmouth** — North Dartmouth, MA
  Student IT Technician — *Oct 2024 – Present*
  - **Technical Support**: Diagnose and resolve hardware, software, and account issues for students and faculty across Windows and macOS, applying systematic troubleshooting and follow-up through resolution.