

Axel VandenHeuvel

Computer Science Student & AI Systems Developer

Boulder, CO, United States | [LinkedIn](#) | [GitHub](#) | [Website](#)

Computer Science student at CU Boulder building AI systems and native applications, with experience optimizing vision-language models for constrained hardware at NASA JPL.

EXPERIENCE

Capstone Student - Onboard Vision-Language Models for Deep Space Spacecraft NASA JPL	Aug 2025 — Present <i>Boulder, CO</i>
Authored PiVision, a C++ library on llama.cpp's multimodal API for running quantized vision-language models on CPU-only ARM64 boards. Created timing instrumentation that produced runtime data benchmarking 13 Gemma 3 and Ministral 3 variants on a Raspberry Pi 5. Co-authored a peer-reviewed paper accepted to IEEE SMC-IT/SCC 2026 evaluating output quality with LLM-as-judge rubrics and mapping model choice to mission latency budgets.	
Cloud Solutions / Azure Intern Tenet Healthcare	Jun 2025 — Aug 2025 <i>Dallas, TX</i>
Built automated audit and analysis pipelines to reclaim unused Microsoft 365 and Azure licensing, contributing to \$500K+ in projected annual cost savings. Integrated the DocuSign API to automate compliance reminder workflows. Created PowerShell automation to detect misconfigurations and manage entitlement workflows across 10,000+ users.	
Student Assistant University of Colorado Boulder Environmental Design	May 2024 — May 2026 <i>Boulder, CO</i>
Building Management Student Assistant University of Colorado Boulder Environmental Design	May 2023 — Aug 2023 <i>Boulder, Colorado, United States</i>
Cashier Woodman's Food Markets	May 2022 — Aug 2022 <i>Buffalo Grove, Illinois, United States</i>
Customer Service Representative Tide Cleaners	Jun 2019 — Aug 2021 <i>Lincolnshire, Illinois, United States</i>

EDUCATION

University of Colorado Boulder <i>Bachelor's degree in Computer Science</i> GPA: 3.66/4.0 — Computer Science GPA: 3.96/4.0	Aug 2021 — Jun 2026
---	---------------------

PROJECTS

VLMs for Deep Space Spacecraft - NASA JPL Senior Capstone Project Currently collaborating with NASA's Jet Propulsion Laboratory to develop an open source software library to run and evaluate VLMs for deep-space spacecrafts.
Speech-to-text app with fully local AI via Homebrew , Local Dictation App for macOS Built and shipped a macOS speech-to-text application via Homebrew with entirely local processing. Runs NVIDIA's Parakeet v3 speech model on the Apple Neural Engine at approximately 50x real time, then refines the transcript using Apple's on-device foundation model, deterministic cleanup rules, and fuzzy user-vocabulary correction.
Native weightlifting tracker with PR detection , Lift-Tracker iOS App Shipped a native weightlifting tracker to the iOS App Store featuring calendar-based logging, reusable workout templates, a 154-movement library, and per-movement progress charts with automatic weight and rep PR detection.
Hybrid vector/graph RAG desktop app for semantic knowledge extraction , GraphRAG Knowledge System Co-built a hybrid vector/graph RAG desktop application (team of 4) that ingests notes in Markdown, PDF, and Notion formats, extracts and canonicalizes concepts with an LLM, and renders them as an interactive 3D force-directed knowledge graph inside a brain mesh. Stabilized the FastAPI backend with shared Kuzu engine, per-request connections, and async endpoints. Built the ingestion pipeline with PDF/zip upload, duplicate detection, Notion importer, and a Milkdown WYSIWYG editor.

SKILLS

Raspberry Pi · Agile Methodologies · Linux · Powershell · Microsoft Azure · Microsoft 365 · Application Programming Interfaces (API) · IT systems development · Cross-team Collaboration · C++ · Python (Programming Language) · JavaScript · HTML · Cascading Style Sheets (CSS) · SQL · VS code · Git · Customer Service · Customer Experience · Organization Skills · Operational Efficiency · TypeScript · Swift · RAG · Ollama ·

[llama.cpp](#) · [On-device inference](#) · [Model evaluation](#) · [Benchmarking](#) · [DocuSign API](#) · [Flask](#) · [FastAPI](#) · [NumPy](#) · [pandas](#) · [SwiftUI](#) · [Claude Code](#) · [Neovim](#)