Collin Drake

cldrake01 | collinlindendrake@gmail.com | +1 (385) 404-5961

Technical Skills

Languages: Rust, C++, Python, Zig, Swift, JavaScript, SQL

Frameworks & Libraries: PyTorch, OpenCV, FAISS, Postgres, JAX

Experience

Computer Vision Research Intern at Grip Places June 2023 - January 2024

- Built an oversampling and preprocessing pipeline using OpenCV and PyTorch.
- Improved facial recognition systems using Facebook's FAISS library.
- Enhanced the accuracy of our age and gender classification model by 15%.
- Filtered and classified a dataset of 120,000 faces for model training.

Projects

NilVec: A Vector Database Designed to Reduce Filter Query Latency GitHub, PyPI Package

- Developed a high-performance vector database with Rust that decouples metadata from embeddings for optimized filter queries.
- Achieved 95.5% reduction in query latency for filter queries compared to ChromaDB and outperformed leading vector databases including Qdrant and Milvus.
- Published to PyPI with comprehensive documentation.

Co-leadership of a Tech Help Volunteering Organization CDIL

I serve as a volunteer and outreach coordinator for Connect Digital Inclusion Labs, a volunteering organization that assists people of all ages with their tech problems. We've served the community in several places, including the Lafayette Public Library, EFFA, senior assisted living centers, and disability centers in collaboration with the Arc of Weld County. My interview with the Boulder Daily Camera can be found here: Peak to Peak Charter students offer tech help to seniors – Boulder Daily Camera.

Education

2025 - 2029 **Computer Science at University of Colorado Boulder**

2021 - 2025 **Peak to Peak Charter School** (GPA: 3.87)

Relevant Coursework & Extracurriculars: Computer Science Honors Society Vice President, Data Structures & Algorithms, Math Club Member