Christopher Williams

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EDUCATION

MEng. Computer Science May 2026
Virginia Tech, Alexandria, VA *(Data Viz & AI)*
Coursework: Machine Learning, NLP, Database Systems, Urban Computing

B.S. Computer Science May 2025
Christopher Newport University, Newport News, VA
Coursework: Artificial Intelligence, Quantum Mechanics, Communications Networks, Algorithms & Data Structures

SKILLS

Languages: Python, C++, Java, Rust, Go, TypeScript/JavaScript, SQL, Bash

Backend & Data: FastAPI, REST APIs, Go, PostgreSQL, MongoDB, SQLite

Frontend & Desktop: React, Vite, SvelteKit, Tauri v2

DevOps: Linux, Git, GitHub Actions, GitLab, Docker, Kubernetes (k3d), Agile/Scrum

Machine Learning: PyTorch (DDP), Hugging Face Transformers, scikit-learn, XGBoost, LangGraph

EXPERIENCE

Student Researcher | Christopher Newport University June 2023 – July 2023
Newport News, VA

– Developed autonomous mobile robot navigation using pedestrian ML pathfinding; integrated **YOLOv8** + **OpenCV** via **ROS** in **C++/Python**

PROJECTS

Quantum Error Correction Transformer Decoder Sept. 2025 – May 2026
Python, Stim, PyMatching, PyTorch (DDP), Docker, HDF5, Bash, SLURM / *Virginia Tech & Northrop Grumman*

– Built a transformer-based quantum error correction decoder grounded in Google DeepMind's AlphaQubit, in collaboration with Northrop Grumman engineers Michael Mullan and Dusty Johnson
– Designed distributed training across **4 H200 GPUs** via **PyTorch DDP** and **SLURM**; engineered an **HDF5** compression pipeline for **50.5GB** of **Stim**-generated and Google-sourced syndrome data, containerized with **Docker**

Resumay: Job Application Tracker Oct. 2026 – Present
Rust, Tauri v2, SvelteKit, TypeScript, SQLite, GitHub Actions / *Personal Project*

– Shipped (**v0.3.0**) a cross-platform desktop app (**Rust** backend, **SvelteKit** frontend) tracking applications through hiring stages; **SQLite** stores applications and resume PDFs with LaTeX source, with credentials kept in the OS-native keyring
– Built an in-app LaTeX editor compiling through a bundled **Tectonic** sidecar, plus an auto-updater with progress UI
– Issue-tracked feature branches, pull requests, and conventional commits; **GitHub Actions** matrix builds **Linux**, **Windows**, and **MacOS** releases gated on tag/version match

Steam Game Recommender Jan. – May 2026
Python, FastAPI, React, MongoDB, Groq API / *Virginia Tech*

– Built a natural-language game recommender with a **React** + **Vite** frontend, **FastAPI** REST backend, and **MongoDB** catalog of 10,000+ games refreshed via the Steam API
– Applied **prompt engineering** to turn free-text queries into structured LLM output (**Groq API**), resolved against curated catalog records

Gentrification Prediction in the DMV with Machine Learning Sept. – Dec. 2025
Python, XGBoost, Go, PostgreSQL, Svelte, Docker / *Virginia Tech*

– Decomposed requirements across data ingestion, model inference, and visualization layers for a 5-year county-level gentrification forecasting tool supporting DMV urban policy analysis
– Served an **XGBoost** model trained on public census data through a **Go**/**PostgreSQL** REST backend and **Svelte** frontend, containerized with **Docker**

Sarcasm Detection with NLP Jan. – May 2026
Python, PyTorch, Hugging Face Transformers, LangGraph, Docker / *Virginia Tech*

– Designed a **LangGraph** orchestrator that launches an isolated **Docker** container per model variant with model-specific hyperparameters, enabling parallel fine-tuning