

JOHN A. BLACKBURN

MY PREFERRED NAME IS JAKE

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EDUCATION

College of William and Mary

B.S. Computer Science, concentration in Machine Learning / AI

Williamsburg, VA

September 2021 – May 2026

- **Major GPA: 3.84** (3.75 cumulative)
- **Minor:** Biochemistry
- **Awards:** Dean's List (6x)
- **Relevant Courses:** Software Engineering, Neural Networks, Data Mining, Topological Data Analysis, Biochemistry, Neurobiology

SIGNIFICANT PROJECTS & ACHIEVEMENTS

Kenai National Wildlife Refuge

Volunteer Machine Learning Consultant

Williamsburg, VA

October 2025 – January 2026

- Led a small team of 5-6 other classmates working on **data preprocessing, model training**, and consulting for the pose estimation component of a novel computer-vision system for automatically identifying brown bears in hundreds of hours of footage.
- Developed and trained an experimental pose-estimation model using **Python** with **PyTorch** and DeepLabcut.
- Reported our results, compiled detailed documentation, and provided suggestions for future work for the Kenai researchers on behalf of the team.

Survey Analysis Toolkit - Software Engineering Capstone

Project MVP / Developer

Williamsburg, VA

September 2025 – December 2025

- Worked in a programming team using the **SCRUM** methodology to develop a toolkit for survey analysis and open-coding with **Python, Django, and Docker**.
- Took on a leadership role within the team: initiating discussion, effectively communicating about complex features, and coordinating development asynchronously to meet our deadlines.
- Awarded 'Project MVP' for outstanding work on the project.

INDEPENDENT PROJECTS IN MACHINE LEARNING AND DATA SCIENCE

[ESV: Skyrim Alchemy Monte Carlo](#)

Data Science Project

Python

~150 commits

- Developed an efficient toolkit for emulating *ESV: Skyrim's* alchemy mechanic with **Python, pandas** and **numpy**.
- Designed experiments including **Monte Carlo simulations** to yield actionable gameplay insights.
- Deployed a website allowing users to utilize the toolkit including a useful way to browse the dataset, and presenting results of experiments made with **Django, Docker, and Railway**.

[Rust-ML](#)

Machine Learning Project

Rust

~50 commits

- Crafted a **Rust** workspace showcasing examples of machine learning algorithms such as linear regression, the perceptron learning algorithm, and **back-propagation** for training feedforward **neural networks** with gradient descent on the classic iris dataset.
- Built everything on a from-scratch Tensor type implementing memory-efficient linear algebra operations.

[Perceptual Style Transfer](#)

Machine Learning Project

Python

~60 commits

- Trained several Neural Style Transfer models implementing the **CNN** architecture with **PyTorch**, using and building upon a **transfer learning** approach developed in [Johnson et al., 2016](#).
- Published a website allowing users to upload and stylize images using **FastAPI, Docker, and Google Cloud**.

OTHER PROJECTS (see website / github for more details)

Image Editor

Low level cli-based image manipulation program.

Rust

~100 commits

Battle Sim

High-performance battle simulation game (VA collegiate game jam 2025).

C++

~70 commits

Digital Gallery

Mock e-commerce website where users can buy famous historical artworks.

Javascript

~50 commits

CERTIFICATIONS & SKILLS

Programming Languages: Python, C/C++ (advanced), Javascript/Typescript, Rust (intermediate), Lua, Java, SQL (basic).

ML & Data Science Tools: PyTorch, Tensorflow, Numpy, Pandas, Matplotlib, Scikit.

Certifications: CompTIA Linux+.

Other: Git/GitHub, Linux (arch, debian, kali), Docker, NeoVim.