JOHN A. BLACKBURN

MY PREFERRED NAME IS *JAKE*

+1(540)-460-7538 | jackblackburnn@icloud.com | [LinkedIn](#) | [Github](#) | [My Website](#)

EDUCATION

College of William and Mary   **Williamsburg, VA**
B.S. Computer Science, concentration in Machine Learning / AI   September 2021 – May 2026
- **Major GPA: 3.82** (3.72 cumulative)
- **Minor:** Biochemistry
- **Awards:** Dean's List (*Spring 2023, Fall 2023, Spring 2024, Spring 2025, Fall 2025*)
- **Relevant Courses:** Software Engineering, Neural Networks, Data Mining, Topological Data Analysis

SIGNIFICANT PROJECTS & ACHIEVEMENTS

Kenai National Wildlife Refuge   **Williamsburg, VA**
Volunteer Machine Learning Consultant   October 2025 – January 2026
- Led a small team of 5-6 other classmates working on **data wrangling**, **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   **Williamsburg, VA**
Project MVP / Developer   September 2025 – December 2025
- Worked in a programming team using the **SCRUM** methodology to develop a toolkit for survey analysis 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**](#)   **Python**
Data Science Project   *~80 commits*
- Developed an efficient toolkit for emulating *ESV: Skyrim*'s alchemy mechanic with **Python** and **numpy**.
- Deployed a demo website showcasing the '*potion calculator*' feature using **Django**, **Docker**, and **Railway**.
- Created a fast and robust **Monte Carlo** simulation infrastructure for analyzing features of the alchemy mechanic under randomized gameplay-realistic constraints.

[**Rust-ML**](#)   **Rust**
Machine Learning Project   *~50 commits*
- Crafted a **Rust** workspace showcasing examples of machine learning algorithms such as linear regression, perceptron learning algorithm, and the **back-propagation** algorithm 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**](#)   **Python**
Image Manipulation Research Project   *~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   **Rust**
Low level cli-based image manipulation program.   *~100 commits*

Battle Sim   **C++**
High-performance battle simulation game (VA collegiate game jam 2025).   *~70 commits*

Digital Gallery   **Javascript**
Mock e-commerce website where users can buy famous historical artworks.   *~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, OpenClaw.