

JACE D. BAPTISTA-ALLAN

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Computer Science and Physics student at the University of Washington with a background in algorithms, systems programming, and machine learning, applying computation to physical and real-world problems.

TECHNICAL SKILLS

- **Languages:** C/C++, Java, Python, JS, C#, SQL, Bash, Powershell
- **Systems & Concepts:** Linux/Unix, networking, concurrency & multithreading, ML, algorithms, databases
- **Tools:** Git, Github, Sourcetree, PyTorch, GDB, Valgrind, VS Code, JetBrains Suite, Cursor

EDUCATION

University of Washington, Seattle

Sep 2024 – Jun 2028 (expected)

Direct-admit to Paul G. Allen School. Bachelor of Science in Computer Science and Physics.

- **3.91 GPA** (Dean's List all quarters)
- **Relevant coursework:** CSE 446 Machine Learning, CSE 493G Deep Learning, CSE 452 Distributed Systems, CSE 333 Systems Programming, CSE 403 Software Engineering, PHYS 225 Quantum Mechanics

EXPERIENCE

Software Developer, Novel Observations in Mixed Reality (NOMR)

Sep 2025 – Present

UW Department of Physics

- Designing and implementing interactive VR physics simulations in C# (Unity) for undergraduate laboratories, modeling real-world experiments and user interactions.
- Managing a shared codebase using Git in collaboration with developers and physics faculty; software is actively used in both introductory and advanced physics courses at UW and WSU.

Research Assistant, Physics Education Group

Jun 2025 – Sep 2025

UW Department of Physics

- Built an automated pipeline for video transcription using Python, PowerShell, FFmpeg, and OpenAI Whisper.
- Analyzed and mapped student problem-solving behaviors, contributing to a published research paper.

Math and Physics Tutor

Sep 2022 – Present

Self-Employed

- Tutoring college and high school students; earned Master Tutor designation from Seattle Preparatory School.

PROJECTS

Low-level Network-based Search Engine

Jan 2026

- Engineered a multithreaded HTTP web server in C++ with thread pool management, concurrent socket I/O, and HTTP request/response parsing to serve a full-stack file search engine with 10K+ documents.
- Mitigated XSS and directory traversal attacks using input sanitization (HTML escaping) and path normalization.

LSTM Stock Prediction

Jun 2026

- Performed 3-way ablation comparing price data vs. technical indicators as feature sets.
- Achieved statistically significant MCC score of +0.2 predicting S&P 500 price direction, notably outperforming baseline random chance (MCC = 0).
- Authored research paper on experimental results.

AWARDS

National Finalist, ExploraVision Science Competition

May 2023

Issued by National Science Teachers Association (NSTA) and Toshiba

- One of 6 national finalists (1st place regional) for designing a hypothetical cancer treatment technology; co-authored paper, built informational website + prototype. Produced a 3D animation to demonstrate the concept.