Noah Trupin

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Education

Purdue University

Bachelor of Science in Computer Science; GPA: 4.0/4.0

Relevant Coursework: Programming in C, Foundations of Computer Science, Object-Oriented Programming

The Lawrenceville School

High School Diploma

EXPERIENCE

Undergraduate Research Assistant

Purdue University Yang Group

- Conducting research on scalable parallelization of the least-squares QR factorization algorithm in Fortran for solving linear systems involving large sparse matrices in seismic tomography under Professor Xiaotao Yang.
- Utilizing OpenMP and OpenMPI for parallelization, message-passing, and multi-threading of the algorithm on distributed compute nodes.

High School Research Assistant

The Lawrenceville School Sentinel Group

- Developed a full-stack framework and API for physics students to build interactive web simulations with p5.js.
- Utilized iFrame and Node is sandboxing and message-passing techniques to provide security and fault tolerance.
- Deployed solution at Lawrenceville, allowing viewers to interact with simulations from their mobile devices.
- Created interactive orbital and raytracing simulations on self-built physics engines as proofs-of-concept.

The Lawrenceville School & The Stroud Water Research Center

- Predicted the behavior of endangered rivers in Lawrence Township and informed land management decisions using historical mid-Atlantic water quality data.
- Generated polynomial regressions (NumPy) and visualizations (Matplotlib) using sensor data observation matrices.

Honors Computer Programming Teaching Assistant

The Lawrenceville School

- Guided students through learning the Wolfram Language, Mathematica, and foundations of technical computing.
- Led follow-along lessons in simulations, distributed systems, user interfaces, and mathematical programming.

POSTERS

N. Trupin, K. Voss. Sentinel: An Interactive Simulation Framework, Spring 2023 Lawrenceville Poster Night. Solution implemented on displays in Lawrenceville's Kirby Math and Science Center. May 2023

W. Phillips, N. Trupin, S. Laubach. Paradigm for Future Analysis of Shipetaukin Creek Water Quality, Winter 2022 Lawrenceville Poster Night. May 2022

N. Trupin, M. Bayona. Applications of Mathematica for Optical Music Recognition, Spring 2022 Lawrenceville Poster Night. Prototype implemented in Mathematica. May 2022

Projects

Hexdump Utility: Command-line hexdump featuring colored output, buffering, and side-by-side text written in C. Lambda Calculus: Compilers and interpreters for the lambda calculus in Rust, Go, Mathematica, and JavaScript. Personal Website: Full-stack Flask/PostgreSQL app where I edit and display my projects, writing, and info. **Neovim Config:** Lua-based config with LSP/autocomplete support, custom UI, fuzzy-finding, and file handling. Lore Browser iOS App: iOS app to search/read Destiny 2 lore by scraping the Ishtar website, written in Swift. Java Classfile Debugger: JVM Classfile decompiler and analysis tool written in C.

Tutor Matching System: GSuite-integrated website to match students with tutors at Lawrenceville.

TECHNICAL SKILLS

Proficient Languages: C, Python, Java, SQL, Swift, Ruby, JavaScript, R, Fortran Developer Tools: Git, Docker, AWS, Google Cloud, Jupyter, Linux Frameworks & Libraries: NumPy, Matplotlib, OpenMP, OpenMPI, SwiftUI, UIKit, React, Node.js, Combine

Lawrenceville, NJ August 2019 - May 2023

August 2023 - May 2027

West Lafavette, IN

October 2023 - Present West Lafayette, IN

December 2021 – May 2022

February 2023 – May 2023

Lawrenceville, NJ

September 2021 – May 2022 Lawrenceville, NJ