Noah Trupin

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Education

The Lawrenceville School, Lawrenceville, NJ
September 2019 - May 2023 (expected)

Projects and Research

The Lawrence Website   March 2022 - Current
Rebuilt the website for The Lawrence, The Lawrenceville School's Columbia Press Award-winning student-run paper, from scratch. The rewrite included a new Ruby on Rails backend, PostgreSQL database with an associated API, redesigned frontend, and integrated portal for editors to upload and edit articles. The rewrite also saw notable increases in site speed and decreases in memory footprint.

Paradigm for Future Analysis of Shipetaukin Creek Water Quality   December 2021 - May 2022
Analyzed and generated reports on temperature, depth, and conductivity data from numerous sites throughout Pennsylvania in coordination with the Stroud Water Research Center and Witt Phillips. The project used NumPy and Matplotlib to establish connections between climate change and evolving river conditions in the mid-Atlantic region.

Mathematica for Optical Music Recognition   March 2022 - June 2022
Conducted a three-month-long research project with Miguel Bayona on the uses of Mathematica for optical music recognition. The final project included a presentation and a program that could read, parse, and play sheet music.

Explorations in the Lambda Calculus   November 2021 - February 2022
Conducted a three-month-long exploration of the lambda calculus and its applications in mathematical logic and programming language theory with Lawrenceville's Miguel Bayona. The final project included a presentation and two interpreters, written in Rust and Mathematica.

Blockchain Lecture for Honors Computer Programming   September 2021 - March 2022
Developed and presented a multi-class lecture on blockchain technology for students in Lawrenceville's Honors Computer Programming (MA555) class, complete with a functional, mineable cryptocurrency prototype contained in a Wolfram Notebook.

Peer Tutoring Requests   November 2021 - Current
Implemented a robust request management system that integrates multiple Google GSuite utilities (Sheets, Forms, and Mail) to streamline the request, triage, and response process for tutors and students at Lawrenceville using Google's JavaScript subset.

Ishtar iOS   September 2021 - April 2022
Developed an iOS app for the Ishtar Collective, a comprehensive collection of all Destiny and Destiny 2 lore. The app utilized web scraping and provided home feed, search, categories, and entry interfaces.

Mathematica Pokédex   October 2021 - November 2021
Created a fully-featured Pokédex, complete with a windowed graphical interface and search functionality, within a Wolfram Notebook using the Mathematica language and PokéAPI as a reference for Lawrenceville's Honors Computer Programming class.

Noah's Assembly Virtual Machine   November 2019
Built a small register-based virtual machine in the V Programming Language to test the language's MacOS
compatibility before its v1.0 release, as requested by the language developer.

Leadership and Experience

Programming Club   President (Grade 12), Board Member (Grade 11), Member (Grade 9-10)
- Created multiple term-long curricula and demonstrations introducing new students to C programming while
  advancing returning students down paths of application development, kernel programming, compiler
  construction, or game development (C#).
- Adapted club meetings to meet the needs of visiting students and students in programming classes, assisting
  them via one-on-one or group tutoring.

The Lawrence (Student-Run Weekly Newspaper)   Web Editor (Grade 11-12)
- Performed a complete rewrite of the website, resulting in 90% faster load times.
- Reevaluated expenses, leading to an 80% reduction in the web department's spending.
- Led a team of associate developers, maintained the website, and ensured content parity with the paper.

Code It Forward   Program Director/Teacher (Grade 11-12)
- Taught 4th, 5th, and 6th-grade students (ages 9-12) from under-resourced schools in the Lawrenceville area
  the basics of web development for 3 hours a week during a 10-week program. Students learned how to
  build and publish personal webpages using HTML/CSS/JavaScript and GitHub Pages.

Senior Prefect   Grade 12
- Served as a senior prefect / residential advisor in my former dormitory.
- Responsibilities included making announcements and giving advice at house meetings, organizing house
  events, helping students access academic and mental health resources, enforcing rules within the house, and
  guiding younger housemates.

MEGAHack   Co-Founder/Event Organizer (Grade 11-12)
- Founded a nonprofit organization, partnered with 14 schools and NGOs, that hosts seasonal hackathons
  focused on the United Nations' 17 sustainable development initiatives.
- Hosted and built the website for a 24-hour hackathon attended by over 200 students from 20 schools around
  the world both in-person and virtually.

Gender-Sexuality Alliance (GSA)   Vice President (Grade 12), Member (Grade 11)
- Organized the school's second annual Pride Week celebration, with discussions, speakers, readings,
  fundraisers, and more.
- Held weekly presentations and talks on queer history and issues both on campus and around the world and
  integrated the GSA into new student orientation.

Peer Tutoring   President (Grade 12), Math/Programming Tutor (Grade 11)
- Developed and implemented a robust request management system that integrates multiple Google GSuite
  utilities (Sheets, Forms, and Mail) to streamline the request, triage, and response process for tutors and
  students at Lawrenceville using JavaScript.
- Tutored programming for 4 hours per week and tutored freshmen mathematics for 2.5 hours per week.

Robotics Design Studio   Director of Programming (Grade 10-11)
- Assisted in building a prototype robot for club members to reference.
- Developed a Java guide for club members to follow while building and programming their robots.