



# Nathaniel White

  natetheadequate

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## EDUCATION

- > **Northeastern University** | Khoury College of Computer Sciences | Honors Boston, MA  
Candidate, B.S. Computer Science & Mathematics \\\ Physics & Chemistry Minor \\\ 3.89 GPA 2021 – 2025
- > **Holliston High School** Holliston, MA  
Track/XC \\\ NHS \\\ Science Olympiad \\\ 1570 SAT \\\ National Merit Finalist 2017 – 2021







## COURSEWORK AND KNOWLEDGE | \* := in progress/learning

- > **Proficient Languages:** Typescript, MongoDB, Python, React, SQL, Java, Lean4, Bash, Linux, C, Mathematica
- > **Familiar Languages:** MATLAB, Rust\*, Machine Learning\*, CUDA, Slurm/HPC, L<sup>A</sup>T<sub>E</sub>X, Schrodinger Maestro
- > **CS:** Theory of Computation\*, Logic & Comp., Networks & Distributed Systems, Algorithms, Object Oriented Design
- > **Math:** Statistics & Stochastic Processes, Linear Algebra, Number Theory, Group Theory, Calculus 3, Diff. Eq.
- > **Science:** Organic Chemistry 1\*, Physical Chemistry\*, Quantum Computation and Information\*, Modern Physics

## RESEARCH AND WORK

- > **Software Engineering Co-op @ Nth Cycle:** Metal Refining Startup Jan. 2023 – June 2023
  - o Identified problems with data capture and analysis such as manually transcribing pdfs, siloed data analysis procedures, nonstandardized datasheets, and exclusively using Excel/paper. Designed and implemented a webapp (see LUCAS project) which used drag-and-drop libraries and MongoDB for a no-code solution.
  - o Fixed problems with internet, printers, laptops, AzureVPN and Remote Desktop in lieu of an IT department
- > **Peer Tutoring:** Discrete, Fundies 1 & 2, OOD, Algo, Phys 2, Calc 3, LinAlg, Prob & Stats Sep. 2022 – June 2023
  - o Demonstrate patience and professionalism with tutees having a variety of skill levels. 164 hours total  $\approx$  4 hrs/wk
- > **Sijia Dong Lab:** Computational chemistry research group Dec. 2021 – Jan. 2023
  - o Bypass time-consuming processes and calculations using automation scripts and ML
  - o Listen and understand technical constraints and communicate progress and possible avenues for progress
- > **Northeastern Undergrad Computer Architecture Research Group:** Nov. 2021 – May 2022
  - o Learned C and beginner CUDA through programming challenges given by Prof. Kaeli
- > **Internship with Town of Holliston Director of Technology:** Nov. 2020 – Feb. 2021, Apr. 2021 – May 2021
  - o Setup and resolve problems with phones, printers, desktops, software, and file storage for municipal departments

## PROJECTS

- > **LUCAS** | ReactTS, MongoDB, Azure, ,  /lucas-demo-screenshots Feb. 2023 – Jun. 2023  
Webapp which enabled drag-and-drop design of forms and data analysis pipelines and graphics. Enabled parsing of files output from a specific machine to upload multiple documents with same metadata, dimensional analysis in pipelines, linking a sample to the other steps in its history, which could have both branching and merging, and the capability to make graphs and tables, all without (them) coding. *Access to full demo site available on request. Written for Nth Cycle*
- > **ML Excitation Model** | Python, Maestro, MATLAB, Bash, TensorFlow Aug. 2022 – Jan. 2023  
Identify what aspects of chloramide, flavins, and styrene influence their excitation wavelengths when they are in proximity to each other. Have written a MATLAB/Python/bash script that transforms the raw coordinates of each atom into more usable and interpretable features, which then can be used as input for a neural network or rounded for use in a neural network to predict excitation wavelengths and strengths. *Completed as part of Sijia Dong Lab*
- > **Automated Docker** | Python, Maestro, Slurm, QtPy /automated\_docking\_script July 2022  
Designed a GUI add-on and backend script for Schrodinger Maestro that automated a time-consuming and error-prone process of generating docking poses for three molecules in all permutations. *Completed as part of Sijia Dong Lab*
- > **N-Bullets in Racket** | Intermediate Student Language (Racket subset) /nbulletsrkt Apr. 2022  
Rewrote a project for a Java-based course in Racket to compare the two languages. Racket was terser, easier to properly test, and (subjectively) more readable. Additional findings and opinions are in the README.
- > **Grave Finder** | ReactJS, PHP, MySQL, Cloudflare, cPanel, SSL /findagravemiddleborough.ml Dec. 2020  
Website to view grave data for a local cemetery preservation nonprofit. Makes use of join tables, searching, filtering, React+MaterialUI forms, an administrator login with a cooldown period after too many login attempts.