Nate Tracy-Amoroso

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Education

Northwestern University, Evanston, IL

McCormick School of Engineering — Graduated: July 2021

Master of Science, Computer Science — Cumulative GPA: 3.8/4.

Bachelors of Science, Computer Science

Relevant Work Experience

Software Engineer, Microsoft, Seattle, WA — July 2021 – Now

- During a one week project speedup 60min pipeline 20% saving $35,000/yr + improving dev experience.

Full Stack Engineering Intern, Uncountable Inc, San Francisco, CA — June 2020 – September 2020

- Designed and optimized a re-usable React 2d graph component to select points with a lasso. Graphs routinely 5000+ points making selection a non-trivial optimization. Integrated component with existing graphs on the platform for easy data filtering when training ML models.
- Speedup CI/CD pipeline by 300% cutting costs 75% through progressive linting & docker optimizations.
- Built full text search in postgresql to support a chemicals library delivering search results in <10ms.

Web Team Developer, McCormick School of Engineering, NU, Evanston, IL — January 2018 – June 2020

- Build a Ruby on Rails system to track the faculty tenure process from start to finish.
- Provisioned access for Northwestern staff using HR APIs resulting in a 100% speedup from the former manual process.
- Prevented attacks like XSS and SQL Injection using content security policy, http headers, and more for Northwestern websites.

Engineering Intern, Snurr Research Lab, NU, Evanston, IL — 2019 - Present

- Worked on large scale high throughput screening of metal organic frameworks to identify top candidates for gas separations like Xe/Kr, nitrogen adsorption, and hydrogen storage.
- Built a chemical materials web database called mofDB, mof.tech.northwestern.edu in collaboration with NIST. To date about 6MM entries and used by about 70 researchers a month.

Teaching Assistant, NU, Evanston, IL — 2018 – 2019

- CS 354: Computer System Security: Overhauled all course projects in an independent study with professor to update to course from x86 to x64. Most labs use C/C++ to exploit systems.
- CS 214 Data Structures. Topics include: abstract data types, complexity analysis, BST, hash tables, bloom filters.
- CS 213 Intro. to Computer Systems. Topics include: memory allocation, x86-64 assembly, bit level operations, GDB debugging, and disassembly.

Intern, Orbit Media Studios, Chicago, IL — Summer 2017 and Winter 2018

- Secured wordpress installations by modernizing apache SSL configs & proper SSH key management.

Creator, Herpetology.pro, educational responsive mobile first web application (open source) — 2019 - Present

- Architected an AWS cloud hosted platform to help people learn about reptiles and amphibians in their area. using crowdsourced data from the herpmapper project. Database includes 16,000 species, 356,000 photos, and 45,000 regions. Around 100 monthly users primarily the US, Canada, UK, and Australia.

Technical Skills

Languages: Rust, Ruby, Python, Typescript , JavaScript ES6, C/C++, SQL , C# (ORDER BY lang.joy DESC)

Development: React, Rails, Docker, Postgres, MySQL, Sqlite3, REST

CI/CD: Bitbucket Pipelines, Github Actions, TravisCI, Azure DevOps

Special Interests: Programming Language Implementation & Compiler Construction, Parallel Programming (CUDA, pthreads, message passing, etc.), Parsers