Bryan Hitchcock

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Education

Michigan State University Aug 2016 - **May 2020**

Computer Science, B.S. | GPA: 3.78/4.00 | Major GPA: 3.92/4.00

Honors: Engineering College Dean's List every semester

Experience

Teaching Assistant: CSE 450 - Compilers and Interpreters Aug 2019 - Present

- Helping students design and implement their compilers in **Python** that stage through lexical, syntactic, and semantic analysis, intermediate language generation, optimization, and target code generation.
- Teaching relevant CS theory: finite & pushdown automata, context-free grammar, regex, abstract syntax tree.

Software Engineer, Intern: BS&A Software May 2019 - Aug 2019

- Developed an internal **TypeScript** Angular web app used by all ~180 employees to facilitate real-time collaboration, saving ~$4,000/month in Trello costs.
- Implemented the back end RESTful API and web socket infrastructure using **C#** ASP.NET Core.
- Architected maintainable service and domain layers to abstract away business logic and data persistence.
- Created robust integration testing infrastructure, resulting in ~95% code coverage.

Projects

Course Sniper Apr 2019 - May 2019

- Created a **C#** WPF desktop application and an IoT CLI tool that automatically enrolls in planned courses whenever there's an available spot.
- Deployed IoT application targeting Michigan State University's scheduling system on a Raspberry Pi 3 B+.
- Enrolled in 4 "full" courses, potentially saving thousands of dollars in tuition costs.

LOLCode Compiler Aug 2018 - Dec 2018

- Developed a compiler using **Python** for a language named LOLCode.
- Stages through lexical, syntactic, and semantic analysis, intermediate language generation, optimization, and target code generation.

SQLite Database Jan 2019 - May 2019

- Created a SQLite-like database using **Python** that lexes, parses, and interprets SQL.
- Implemented joins, transactions, concurrency control, custom aggregate functions, collations, views, etc.

Skills

- **Languages**: Python, C#, JavaScript/TypeScript, C/C++, Java, SQL, *Rust**, *CUDA**
- **Libraries & Frameworks**: OpenMP, MPI, Angular, Vue, Nodejs + Express, Nestjs, GraphQL, Flask, ASP.NET Core, SignalR, Entity Framework Core
- **Other**: Git, Agile/Scrum, Linux/Unix, pytest, xUnit, Jest, Amazon Web Services, Microsoft Azure

Course Electives

- **CSE 402**: Biometrics and Pattern Recognition
- **CSE 410**: Operating Systems
- **CSE 415**: Parallel/Distributed Computing (HPC)
- **CSE 422**: Computer Networks
- **CSE 431**: Algorithm Engineering
- **CSE 450**: Compilers and Interpreters
- **CSE 480**: Databases
- **CSE 491**: Advanced C++ **(6 students invited)**