Sean Bachman

484-345-1006 seangbachman@gmail.com linkedin.com/in/seanbachman github.com/seanbachman

Education

Lehigh University, 3.55 GPA — Bethlehem, PA
Bachelor of Science in Computer Science and Engineering, Minor in Applied Mathematics — *Aug. 2020 – Dec 2023*

Berks CTC — Leesport, PA
MIS/IT-Programming — *Aug. 2017 – May 2020*

Experience

Systems Software Engineer — Dec. 2021 – Present
Structural Services Inc. — *Bethlehem, PA*

- Lead developer of computer vision software for an AI-powered assistive system for the construction industry
- Optimized the previous codebase using C++ and Python to execute approximately 5x faster and improve optical character recognition accuracy to 98% using machine learning
- Designed and implemented algorithms using linear algebra to virtually construct stitched images in real time
- Utilized Git, CMake, virtual environments, and Linux tools to manage a complex 10,000+ line codebase
- Worked in a fast-paced, highly motivated startup environment, in constant communication with other team members, while adapting to constantly evolving designs, unexpected obstacles, and compressed timelines

Computer Science Instructor — Dec. 2020 – Dec. 2021
Juni Learning — *Remote*

- Executed advanced computer science lesson plans over Zoom for students ages 8-18
- Prepared individualized lessons plans for each student, adapting the curriculum to suit student needs and interests
- Maintained thorough records for each student, covering multiple courses and skill-level progressions
- Communicated with parents on a regular basis, providing updates on student progress and results from assessments

Projects

AsaLang — Oct. 2021 – Present

- Designed and implemented my own Turing complete programming language and run time environment using Rust
- Leveraged the nom parser combinator library to create an efficient and easy to understand tree walk interpreter
- Automated verbose test cases and created documentation covering implementation details and example Asa programs

Operating Systems Course Project — Sept. 2022 – Present

- Created a multi threaded client-server application with persistent users and secure network protocols in C++
- Leveraged AES and RSA to establish secure communications of requests that are then handled by a thread pool
- Followed the factory design pattern and chained lambdas with 2PL to achieve thread safety and avoid data races

Wordle Solver — May 2022 – Aug. 2022

- Designed a small command line application using Python to solve the New York Times Wordle
- Utilized advanced Python concepts such as lambdas and itertools chain

Digital Portfolio — May 2020 – Aug. 2020

- Designed an open-source portfolio web theme leveraging Bootstrap
- Created extensive documentation that is still used as a part of class curriculum

Technical Skills

Languages: Asa, C/C++, Python, Rust, Java, SQL, Haskell, Prolog, Visual Basic, JavaScript, Dart, HTML/CSS
Developer Tools: Git, Docker, Maven, CMake, Android Studio, VS Code, IntelliJ, Jupyter Notebook
Technologies/Frameworks: Linux, TensorFlow, Keras, Heroku, WordPress, Bootstrap