Olivia Appleton-Crocker

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Summary

Software Engineer and Data Scientist with expertise in Python, software design, and systems programming. Experienced in research, GIS, and industry R&D; solving complex challenges in distributed systems & open-source development (including CPython). Skilled in designing efficient, flexible, and well-structured software that bridges academia with industry.

Experience

Data Science Fellow, TMW Center for Early Learning + Public Health – Chicago, IL — May 2024 – June 2025

- Raising backend code (∼19k lines) coverage by 25+ percentage points
- Wrote code in C#, TypeScript, JavaScript, and Python
- Assisted in integrating two programming teams

Teaching and Research Assistant, Michigan State University – East Lansing, MI — Jan. 2020 - Feb. 2023

- Published 2 papers, where the relevant code was written in Python
- Assisted teaching classes, including one where we implemented SQLite from scratch in Python 3
- Consistent high reviews from students

Product Development Engineer (Various Titles), Intel (NSG) – Folsom, CA — Jan. 2018 - Dec. 2019 (Gap to continue at Northern) May 2015 - Sep. 2016

- Lead a small team of programmers (3-5 people at any given time)
- Helped design a testing protocol for NVMe's Power Loss Notification
- Influenced changes to the NVMe specification
- Rewrote internal tools to streamline and comply with Python 3
- Built software models of various pre-market products

Education

Michigan State University, Master's in Computer Science & Engineering — Jan. 2020 - Dec. 2022

- GPA: 3.85/4.0
- **Coursework:** Discrete Logic, Distributed Systems, Foundations of Computing, Machine Learning, Graph Algorithms, Parallel Computing

Northern Michigan University, BS in Computer Science — Sep. 2013 - Dec. 2018 (Concurrent with Intel)

- GPA: 3.84/4.0 (Magna cum laude)
- **Coursework:** Algorithm Design/Analysis, Data Structures, Micro Architecture, Networking, Object-Oriented Design, Operating Systems

Publications

Achieving Causality with Physical Clocks — Jan. 2022

Sandeep S Kulkarni, ***Olivia Appleton-Crocker***, Duong Nguyen — 10.1145/3491003.3491009

Efficient Two-Layered Monitor for Partially Synchronous Distributed Systems — July 2020

Vidhya Tekken Valapil, Sandeep S Kulkarni, Eric Torng, ***Olivia Appleton-Crocker*** — 10.48550/arXiv.2007.13030

Projects

CPython — github.com/python/cpython

- Added support for the UDPLite network protocol
- Tools Used: C, Python, Sphinx, UnitTest

Showcase: Project Euler Solutions — euler.oliviaappleton.com

- Solutions in 9 different languages to various math programming puzzles, including extensive prime number toolkit
- Tools Used: C, C++, C#, CI/CD, Fortran, Java, JavaScript, Lua, Makefile, Python, Rust, Sphinx, WebAssembly

Overpassify — github.com/LivInTheLookingGlass/overpassify

- A transpiler that turns Python code into OpenStreetMap's OverpassQL query language
- Tools Used: Makefile, OpenStreetMap, OverpassQL, Python

Technologies

Languages: Python, C/C++, C#, Rust, JavaScript, SQL, Java, Bash, Fortran, Lua, SmallTalk
Technologies: CI/CD, Cypress, Github Actions, Makefile, Mocha, Moq, .NET, PyTest, UnitTest