

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
<ul style="list-style-type: none">Raising backend code (~19k lines) coverage by 25+ percentage pointsWrote code in C#, TypeScript, JavaScript, and PythonAssisted in integrating two programming teams	
Teaching and Research Assistant , Michigan State University – East Lansing, MI	Jan. 2020 - Feb. 2023
<ul style="list-style-type: none">Published 2 papers, where the relevant code was written in PythonAssisted teaching classes, including one where we implemented SQLite from scratch in Python 3Consistent 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
<ul style="list-style-type: none">Lead a small team of programmers (3-5 people at any given time)Helped design a testing protocol for NVMe's Power Loss NotificationInfluenced changes to the NVMe specificationRewrote internal tools to streamline and comply with Python 3Built software models of various pre-market products	

Education

Michigan State University , Master's in Computer Science & Engineering	Jan. 2020 - Dec. 2022
<ul style="list-style-type: none">GPA: 3.85/4.0Coursework: 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 & HS)
<ul style="list-style-type: none">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, <i>Olivia Appleton-Crocker</i> , Duong Nguyen	10.1145/3491003.3491009
Efficient Two-Layered Monitor for Partially Synchronous Distributed Systems	July 2020
Vidhya Tekken Valapil, Sandeep S Kulkarni, Eric Tornq, <i>Olivia Appleton-Crocker</i>	10.48550/arXiv.2007.13030

Projects

CPython	github.com/python/cpython
<ul style="list-style-type: none">Added support for the UDPLite network protocolTools Used: C, Python, Sphinx, UnitTest	
Showcase: Project Euler Solutions	euler.oliviaappleton.com
<ul style="list-style-type: none">Solutions in 9 different languages to various math programming puzzles, including extensive prime number toolkitTools Used: C, C++, C#, CI/CD, Fortran, Java, JavaScript, Lua, Makefile, Python, Rust, Sphinx, WebAssembly	
Overpassify	github.com/LivInTheLookingGlass/overpassify
<ul style="list-style-type: none">A transpiler that turns Python code into OpenStreetMap's OverpassQL query languageTools 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