# Olivia Appleton-Crocker

Chicago, IL | +1-906-361-9876 | oliviaappleton.com | liv@oliviaappleton.com | github.com/LivInTheLookingGlass

## 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 – Present

- 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

- Coordinated 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