MATTHEW TINO

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SUMMARY

Nanotechnology engineer with 2+ years experience in scientific software development on Linux machines.
Well-versed in the Python scientific stack (numpy, scipy, matplotlib) using git/mercurial version control systems.

EDUCATION

Master of Applied Science in Chemical Engineering – *University of Waterloo* 2022 – 2024

- Ontario Graduate Scholarship, Engineering Excellence Master's Fellowship

Bachelor of Applied Science in Nanotechnology Engineering – *University of Waterloo* 2017 – 2022

- Class Valedictorian, Engineering Entrance Scholarship, Nanotechnology Mentorship Program

EXPERIENCE

Scientific Software Developer – *Continuum Engineering* Feb. 2024 – Aug. 2024

- Re-wrote a legacy MATLAB and C++ codebase for complex heat and mass transfer simulations in Python
- Developed a web application via `streamlit` to allow users to execute simulations without Python knowledge

Scientific Researcher & Programmer – *COMPHYS Research Group* Sept. 2022 – July 2024

- Creator and primary maintainer of the `shapelets` repository, an open-source Python library for image analysis
- Researched new image processing techniques for nanostructure analysis with two first-authored publications
- Used clustering methods to design a novel technique to identify structural defects from microscopy imaging

Software Engineer – *Continuum Engineering* May 2022 – Aug. 2022

- Worked on improving an open-source computational fluid dynamics library – github.com/uw-comphys/opencmp
- Implemented advanced nonlinear solvers to accelerate runtimes of multiphase flow simulations by more than 50%

Water Treatment Researcher – *H2nanO* Sept. 2019 – Apr. 2020

- Developed a 3D photonics-based MATLAB model to quantify UV light intensity inside water treatment vessels
- Designed laboratory experiments involving spectroscopy data collection, manipulation, and interpretation

PROJECTS

`shapelets` github.com/uw-comphys/shapelets

- Library implements several image processing and machine learning techniques for complex image analysis
- Designed and developed overall library structure, coordinating commit efforts for a small development team
- Implemented unit test automation platform, along with detailed library examples and documentation

SKILLS

Languages: Python, MATLAB, C++

Technologies: Linux, NumPy, SciPy, Matplotlib, PyTorch, Streamlit, Git, Mercurial, GitHub, LaTeX