Matthew Ruiz

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Education:

University of Michigan, M.S. Computer Science 08/2022 – present
Courses: Programming Languages, Advanced Compilers, Computer Architecture

University of Florida, B.S. Computer Science & Mathematics 08/2018 – 05/2022
Courses: Senior Project, Operating Systems, Network Fundamentals, Linear Algebra

Technical Skills:

Languages: OCaml/Reason, C/C++, Python, TypeScript

Tools and Environments: Linux, Docker, LaTeX

Research Experience:

Research Assistant Volunteer, FP Lab, University of Michigan 11/2022 – present

- Working on a property-based testing project for the implementation of the Hazel programming language under the supervision of Professor Cyrus Omar
- Wrote code that verifies one of the Hazel theorems as a property in the implementation
- Wrote unit tests for type checking and expression elaboration

Research Assistant Volunteer, SurfLab, University of Florida 08/2020 – 05/2022

- Assisted with the isogeometric analysis project that numerically solves differential equations on geometric surfaces in 3D space
- Wrote a solver using the Galerkin method for Poisson's equation in C++

Work Experience:

Instructional Aide, FP Lab, University of Michigan 06/2023 – 08/2023

- Writing code for Hazel to check the syntax properties of student submissions in EECS 490
- Can check syntax properties such as whether a function is tail-recursive or not
- Syntax results are used to calculate the final grade on the assignment

Back-end Development Intern, Red Hat marketplace, IBM, Durham, NC 05/2021 – 08/2021

- Application deployment and management software in TypeScript
- Implemented features for clients and admins to manage product and user information

Computational Fluid Dynamics Intern, Ansys, Inc., Canonsburg, PA 05/2020 – 08/2020

- Finite element analysis software for fluid dynamics simulations written in C++
- Located and fixed bugs in the memory management system of the fluid solver
- Wrote tests in Python to assess the fluid velocity based on certain initial conditions

Conference Participation:

Programming Languages Mentoring Workshop at ICFP 09/2023

- Acquired scholarship for traveling and lodging expenses

Volunteer Experience:

Xplore Engineering Volunteer 07/2023

- Assisted and presented in front of 4^{th}-7^{th} grade students in a computer science workshop

Discover Engineering Volunteer 08/2023

- Assisted and presented in front of 8^{th}-10^{th} grade students in a computer science workshop