Matt Schwennesen

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mjschwenne

Education

Aug 2023 – · · · · **University of Wisconsin – Madison** Perusing Ph.D. in Computer Sciences.
GPA: 3.912

Aug 2019 – Dec 2022 **Michigan Technological University,** B.Sc. Computer Science
Minor in Mathematical Sciences, GPA: 4.00

Teaching Experience

Jan 2024 – Dec 2024 **Head Teaching Assistant,** University of Wisconsin — Madison.
CS 400 Programming III

Aug 2023 – Dec 2023 **Teaching Assistant,** University of Wisconsin — Madison.
CS 400 Programming III

Aug 2022 – May 2023 **Teaching Assistant,** Michigan Technological University.
CS 3411 Systems Programming

Jan 2023 – May 2023 **Lab Instructor,** Michigan Technological University.
CS 1121 Introduction to Programming I

Jan 2021 – Dec 2022 **Learning Center Coach,** Michigan Technological University.

Conferences

Jun 17–21 2024 **NetSci 2024**, Quebéc City, Canada.
Presented during *Software Tools for Network Science* tutorial on cross package network analysis.

Jun 3–13 2024 **Oregon Programming Languages Summer School**, Boston University, Massachusetts.
Types, Semantics and Applications

Research

Jan 2024 – · · · · **Research Assistantship with Tej Chajed**

- Currently researching formal verification of software updates.

Aug 2024 – Jan 2024 **Grackle: Proof-Instrumented Marshaling & Unmarshaling.**
Independent Study with Tej Chajed.

- Investigated techniques for automating repetitive Coq proofs using Goose and Perennial.
- Implemented a go program generating marshaling and unmarshaling code for protobuf messages and a Coq proof of correctness.

Research (continued)

May 2022 – Aug 2022 — **Locality Sensitive Hashing of Polygons.**
Research Experiences for Undergraduates – Marquette University.

- Researched uses of locality sensitive hashing to approximate nearest neighbor searches over polygons.
- Implemented a multi-threaded C++ system to perform geometric approximate nearest neighbor searches.

May 2021 – Aug 2021 — **Asymmetric Traveling Salesperson Approximation.**
Google Summer of Code – NetworkX.

- Worked with NetworkX to implement approximate asymmetric traveling salesperson algorith.
- Learned how to manage GitHub within a large open source project.
- Perform critical analysis of relevant graph theory and computer science research papers.

Skills

Mathematics	Proof tactics, mechanized proofs, separation logic, programming languages, graph theory, combinatorics, linear optimization, algorithm design, complexity theory
Programming	Python, Coq, Go, C, C++, Java, Haskell, R, SQL, Lisp, Nix
Misc.	Academic research, teaching, LaTeX typesetting.

Awards and Achievements

- **Dean's List**, Michigan Technological University, 7 semesters.

Certificates of Merit in:

- **Combinatorics & Graph Theory**. Awarded by Michigan Technological University.
- **Optimization & Graph Algorithms**. Awarded by Michigan Technological University.
- **Statistical Programming**. Awarded by Michigan Technological University.
- **Regression Analysis**. Awarded by Michigan Technological University.
- **Predictive Modeling**. Awarded by Michigan Technological University.