# Eric M. Frederickson


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**Education:**

B.S. in Computer Science, University of Minnesota Twin Cities College of Science and Engineering, 2021-2024.

Important coursework:

- CSCI 2041 – Advanced Programming Principles (A)
- CSCI 3081w – Program Design and Development (A-)
- CSCI 4011 – Formal Languages and Automata Theory (A)
- CSCI 4041 – Algorithms and Data Structures (A)
- CSCI 5421 – Advanced Algorithms and Data Structures (A-)

**Skills and Knowledge:**

*Programming Languages:* C (gcc, clang), C++ (g++), D (dmd), JavaScript (vanilla, React, Express), Python3, Shell (bash, zsh), Java (openJDK) Lisp (sbcl, emacs) Ocaml, Haskell (ghc), Ruby, SQL (MySQL)

*General Tools and Editors:* coreutils (GNU), Docker, Git, Vim, Emacs, VSCode

*Operating Systems:* GNU/Linux (Arch, Ubuntu), MacOSX, BSDs (FreeBSD, OpenBSD), Windows

*Web Technologies:* HTML, CSS, AWS (Lightsail VPS to host my personal website, Route53 DNS), node, npm, nginx

*Algorithms and Data Structures:* Iterative and recursive methods, divide-and-conquer strategies, greedy strategies, amortized cost analysis, lists (array, singly and doubly linked), queues, stacks, trees (binary, red-black, disjoint-set forests), hashmaps (chaining, probing, hash functions), graphs (traversal methods, shortest paths)

*Design Strategies:* object-oriented design, (purely) functional design, proper commenting and documentation

*Mathematics:* Automata, Turing machines, theories of computation, Calculus (single and multi variable, differential equations), Complex analysis (discrete Fourier transform as applied to O(n lg n) polynomial multiplication), Cryptography (symmetric and asymmetric algorithms, applications on modern internet), Graph theory, Group theory, Linear algebra, Logic, Number theory, Set theory, topics in formal languages (regular expressions, parsing)

*English:* Native proficiency. Passionate about English literature and composition. Very strong writing skills.

**Employment & Project History:**

*Computer Science Teaching Assistant (Spring Semester 2022, Spring Semester 2024):* Worked as a teaching assistant under Professor Andrew Exley for CSCI 1133 (Intro to Programming Principles, taught in Python3), and under Professor Gopalan Nadathur for CSCI 4011 (Formal Languages and Automata Theory) at the University of Minnesota. Consistently demonstrated excellent performance, engagement, and leadership in all roles of the job, including leading lab sections, holding office hours, and grading student work.

*Developer in Training at Doenet (part-time, August 2022):* Worked through a detailed training program involving ReactJS, Docker, and team collaboration. Excelled in the learning process, finishing assigned materials ahead of schedule. Contributed valuable ideas during weekly meetings.

*Product Owner & Developer (simulated, April-May 2023):* Worked alongside 3 randomly-assigned team members in a full simulation of a development cycle for the expansive final project of CSCI 3081w. Took on the role of product owner and guided the team in adding multiple complex features to an existing codebase which implemented a graphical simulation of a drone-delivery system. Developed a great relationship with the team and worked with them to accomplish goals in both the front-end (vanilla Javascript) and back-end (C++) parts of the app. Worked to effectively implement an Agile development process. Took a leading role in writing the source-code documentation and final write-up for the project. Achieved a grade of 91/100. A Docker container of the work is published on Dockerhub under `nfactbkt/drone_sim` (hub.docker.com/r/nfactbkt/drone_sim).