Conner Rose

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Education

University of Michigan, *Ann Arbor, MI* **August 2022 - May 2026**

B.S.E. and M.S.E. in Computer Science, Minor in Mathematics *GPA: 3.71/4.0*

- **CS Coursework**: Data Structures and Algorithms, Discrete Math, Machine Learning, Computer Organization, Computation Theory, Web Systems, Operating Systems, Formal Verification of Systems Software, Search Engines, Distributed Systems, Advanced Compilers, Randomness and Computation, Category Theory
- **Mathematics Coursework**: Calculus I-IV, Linear Algebra, Combinatorics and Graph Theory, Probability, Real Analysis, Graduate Probability Theory, Advanced Linear Algebra, Discrete State Stochastic Processes, Graduate Topology
- **Involvement**: Traders at Michigan Head of SWE, Michigan Running Club, Poker Club

Experience

IMC Trading, *Chicago, IL* **June – August 2025**

Software Engineer Intern - Equity Options Execution

- Developed component responsible for detecting and publishing **microstructural** signals to auto trader deployments
- Designed standalone C++ engine, achieving full feed handling on a single deployment via multithreading, replacing existing Java/C++ system, which previously required sharding traffic across several deployments per exchange
- Implemented backwards compatible test fixture to leverage existing component test suite for our new implementation
- Deployed to live trading production, working with traders to guarantee parity with existing component

Bloomberg L.P., *New York, NY* **June – August 2024**

Software Engineer Intern – Enterprise Data, Index Core Data

- Designed and implemented dependency resolution and automated testing tool using **Python**, used by team of **80 engineers**, reducing turnaround time when modifying bond formulas in distributed calculation engine by 80%
- Expanded testing coverage from single-field to **end-to-end**, identifying existing bugs in calculation pipeline, and preventing bugs from being introduced that would not have been identified previously, resulting in more **robust system**

Bloomberg L.P., *New York, NY* **May – August 2023**

CTO Office Intern – Compute Architecture and OSPO

- Designed automated access revocation system using **Python** and **LDAP**, deployed to **Docker**-containerized **Jenkins Pipeline**, ensuring appropriate removal of inactive accounts from Bloomberg's open-source GitHub repositories
- Developed GitHub crawler using **Python** to audit all projects contributed to by Bloomberg employees over 10 years, automating contribution cataloging and open-source license compliance verification, increasing audited projects by **3x**

Projects

Search Engine **January - April 2025**

C++, Networks, Distributed Systems

- Implemented highly-compressed, on-disk reverse word index used to store **500M pages'** data at 3KB of data per page
- Built distributed web crawler capable of indexing 600 pages per second per machine, deployed on 18 machines

Omakase (Trading Game) **March 2025**

C++20, TypeScript, React, WebSockets

- Developed real-time ETF trading game, played at UMich Trading Competition by **120 players concurrently**
- Implemented high-performance matching engine in **C++**, achieving average order processing time of **75ns**, with **WebSocket**-based communication protocol to support high trading volume, avoiding continuous polling
- Utilized **state machine replication** to ensure consistent state resulting from potential backend crashes and reboots

Network File Server **December 2024**

C++20, Boost, Multithreading, Socket Programming, File Systems

- Designed and implemented **highly-concurrent** network file system in modern **C++**, using **Boost** upgradeable reader-writer locks for increased concurrency, while guaranteeing disk consistency in the event of crashes

Operating System Kernel, *C++20* **October - November 2024**

- Implemented thread-safe **virtual memory manager** in **C++**, capable of servicing concurrent mmap requests
- Wrote threading library in **C++**, supporting mutexes, condition variables, and scheduling on multi-CPU systems

Technical Skills

Languages: C++, C, Python, Go, JavaScript/TypeScript, HTML/CSS, SQL, LaTeX

Tools: Linux, Git, Docker, Jenkins, Django, React, PostgreSQL, MongoDB, Pandas, NumPy, (Neo)Vim, Tmux