

# Nicholas (Cole) VanOphem

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## EDUCATION

### University of Michigan

Ann Arbor, MI

*Bachelor of Science, Computer Science*

*August 2022 – December 2024*

- **GPA:** 3.70/4.00 | **Awards:** University Honors | **Leadership:** Michigan Hackers (Team Lead)
- **Courses:** Data Structures & Algorithms, Web Systems, Computer Architecture, Theory of Computer Science, Programming and Intro Data Structures

### Michigan State University

East Lansing, MI

*Bachelor of Science, Computer Science & Mathematics*

*August 2021 – May 2022*

- **GPA:** 3.86/4.00 | **Awards:** Dean's List | **Activities:** FIRST@MSU, Campus Band
- **Courses:** Honors Multivariable Calculus, Discrete Mathematics, Physics 2: Electricity Magnetism & Optics, Probability and Statistics, Engineering Design

## EXPERIENCE

### Software Engineer Intern

May 2023 – August 2023

*United Wholesale Mortgage*

*Pontiac, MI*

- Embedded in full-time scrum team, participated in daily stand-ups, sprint plannings, and sprint retrospectives.
- Developed containerized C#, ASP.NET Core microservice to aggregate data from scheduled RESTful API calls.
- Architected SQL Server data model to store aggregated data via Entity Framework Core.
- Deployed to Azure via Docker containers and integrated with Orkes Conductor.
- Processed over 1.48 million data fields per day, making data available for machine learning prediction models.
- Presented project regularly to product owner, stakeholders, and architects, received and implemented feedback.

### Fulfillment Center Associate

May 2022 – August 2022

*Amazon*

*Pontiac, MI*

- Fulfilled orders in the picking process path, removing items from robots, and placing items into totes for sorting.
- Consistently exceeded capacity and accuracy requirements to fulfill orders with attention to quality and safety.

## PROJECTS

### ML-Based Forum Post Classifier

- Created a Multivariate Bernoulli Naive Bayes Classifier in C++ to predict the topic of Piazza forum posts.
- Trained on data set of over 11,000 posts and achieved over 87% prediction accuracy while classifying posts.
- Implemented binary search tree and map data structures to store data during training process.

### Stock Market Simulator

- Architected a program to simulate buy and sell orders from multiple traders on multiple stocks in a market.
- Implemented in C++ using priority queues to match buyers and sellers.
- Applied multiple data analysis modes to calculate each trader's and stock's performance at end of day.

### TSP Solver

- Designed a program that can calculate approximate and exact solutions to the Travelling Salesman Problem using multiple methods.
- Implemented a branch and bound algorithm in C++ that calculates optimal TSP solutions for graphs of up to 30 nodes in as little as 10 seconds.
- Built a polynomial-time TSP estimator using an arbitrary insertion heuristic to be used as a bounding function.

### SQL Emulator

- Developed a program to emulate a basic relational database using STL containers and algorithms.
- Implemented a subset of SQL commands, including JOIN and conditional statements.

## TECHNICAL SKILLS

**Languages:** C/C++, C#, SQL, Python, HTML/CSS

**Frameworks:** ASP.NET Core, EF Core, .Net Core, xUnit, Flask

**Tools:** Git, Docker, Postman, VS Code, Visual Studio, Agile, Scrum