

Nathaniel Colburn

781-860-2416 · natebcolburn@gmail.com · natebcolburn.com · Lexington, MA

EDUCATION

University of Wisconsin-Madison, *Bachelor of Science*, Madison, WI

Expected May 2025

- Majors: Computer Science, Data Science
- GPA: 3.92/4.00
- UW-Madison Dean's List (Fall 2021, Spring 2021, Fall 2022, Fall 2023)

PROFESSIONAL EXPERIENCE

Cisco, *Software Engineering Intern - Government Security*, Remote

May–July 2024

- Develop a tool in **Python** to easily test device compliance with FIPS-approved algorithms, cutting testing time from one week to one day, allowing teams to rapidly undergo FIPS compliance reviews.
- Stand up containers and servers within the software to establish TLS connections to devices using FIPS-approved ciphers. Obtain network captures for easy debugging and produce cleanly formatted results.
- Write thorough unit and integration tests to eliminate errors in the software.

Garmin, *Software Engineering Intern*, Olathe, KS

May–August 2023

- Partnered with the consumer automotive and cartography teams to build programs in **C++**, **SQL**, **Python**, and **C#** to develop map-routing algorithms and design and implement tools used in nearly all Garmin products.
- Implemented new feature that offers runners and bikers alternate return paths to their start point that preserve the desired distance/time of their workout, making it easy for users to try new routes without fear of deviation from their target workout. Deployed to Garmin's internal mapping platform for future deployment to users.
- Designed and implemented a solution to store route popularity data more efficiently using a hash map, reducing global map storage size by 1.5%.

Spark (Parking App Startup), *VP Engineering/Founding Member*, Remote

October 2022–May 2023

- Helped develop an iOS app that allows homeowners to rent out their driveways/parking spots. Built with **Swift**, **SwiftUI**, and **Objective-C**; incorporates Apple Maps API, Firebase, and Stripe.
- Built UI for a parking spot booking process on both homeowner and user ends, implemented autofill on search bars across the app, improved UX by fixing issues with map rendering, zooming, and location services, and more.
- Learned how to work on a small startup team, market to investors and customers, conduct sales calls, and effectively hold meetings and communicate ideas.

ACS Industries, *Information Technology Intern*, Lincoln, RI

June–August 2022

- Tested and configured remote desktops using **AWS** WorkSpaces for company-wide deployment.
- Successfully defended against multiple email DoS attacks.
- Collaborated with IT professionals across the globe to provide Help Desk support to thousands of users.

PROJECTS

- Built an image captioner using a **CNN** to extract image features and a **Bidirectional LSTM** to generate captions. Tuned hyperparameters with Weights and Biases to yield a 0.57 BLEU-1 score on a dataset of 8,000 images.
- Built a reinforcement learning model in **Python** with **PyTorch** library using an epsilon-greedy Q-Learning policy to have an agent intelligently play and improve in the FrozenLake environment from OpenAI Gym.
- Analyzed car seat sales data in **R Studio**, identified important predictors using LASSO, stepwise regression, and ridge regression methods, and created a model to predict future sales with a mean squared error of only 7.56.
- Created an AI Teeko player in **Python** using a minimax algorithm; won 70% of matches against random players.

Faste (*in development*), *CTO*, Remote

May 2024 - Present

- Build iOS app to locate discounts and happy hours at restaurants in Madison, WI. Work with restaurants to identify downtimes and run promotions to attract additional business. Built with Apple Maps and MongoDB.

LEADERSHIP EXPERIENCE

Sigma Alpha Epsilon Fraternity, *Social Chair, Public Relations Chair*, Madison, WI

December 2021–Present

- Planned 30 events with attendance of 500-1,000 people each while managing a \$100,000 annual budget.
- Raised \$45,000 for epilepsy research through an annual philanthropy event. Run social media accounts.

Abbott's Frozen Custard, *Store Manager*, Lexington, MA

August 2019–August 2022

- Helped develop an online delivery service for the franchise owner. Managed employees, store, menu, and cash.