

# Nathan Brown

[nathanmbrown@outlook.com](mailto:nathanmbrown@outlook.com) ❖ Clemson, SC

[nathanmbro.com](https://nathanmbro.com) ❖ [github.com/OxxoCodes](https://github.com/OxxoCodes) ❖ [linkedin.com/in/nathanmbro](https://linkedin.com/in/nathanmbro)



## WORK EXPERIENCE

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### Giant Oak

September 2022 – Present

*Clemson Fall 2022 Capstone Member*

*Clemson, SC*

- Working in a small Scrum team to improve the Natural Language Processing (NLP) methods used by the named-entity recognition (NER) model within GOSTCrawl, the indexer that drives the data behind Giant Oak's GOST platform.
- Focusing on model pruning, compression, sparsification, and distillation methods to improve cost efficiency by increasing the model's speed and reducing the model's size while maintaining the same level of accuracy.
- Currently working to train this model using the Clemson University Palmetto Cluster.

### Clemson University

August 2022 – Present

*Security Analyst Intern*

*Clemson, SC*

- **Technologies:** Splunk, Elastic, Proofpoint, Abnormal, FireEye, Cherwell, Python
- Actively monitoring and responding to security events and notices, identifying incoming security incidents, identifying compromised systems and users, reviewing vulnerability reports, researching and responding to phishing incidents.
- Assisting in the deployment of an internal enterprise phishing campaign to improve student awareness of phishing scams.
- Developing and maintaining internal security automation tools.

### Ally Financial

May 2022 – August 2022

*Software Development Intern*

*Charlotte, NC*

- **Technologies:** TypeScript, JavaScript, React, Storybook, Docker, Node, Git, HTML, CSS
- Completely rewrote internal web dashboard from Ember.js to React utilizing API queries to display results in application.
- Rewrite included complete visual redesign and development of many additional features with a focus on modularity, performance, and DRY programming.

### Security and Networking Mentorship

March 2022 – September 2022

*Mentee*

*Remote*

- Took part in private security-focused mentorship with active SecOps engineer
- Topics included de-authentication and denial-of-service attacks, AES and RSA encryption, subnetting, DNS, routing algorithms, ISO certifications, GRC, CIA triad, STRIDE model.
- Partnering with mentor to develop Nitrogen, a CSP violation aggregation and visualization tool further described below.

### Clemson University

April 2021 – June 2022

*VR Research Assistant*

*Clemson, SC*

- Led development of a cross-platform mobile VR Grand Canyon exploration simulation. Focus on wide range of target devices, heavy performance optimization techniques, and implementation of new features. Made in Unity.
- Led development of a hospital staff training simulation. Updated deprecated components and dependencies, debugged various pre-existing issues, enhanced user experience. Made in Unity using IBM Text-to-Speech API.
- Successfully negotiated additional project budgeting for new hardware, improving our capabilities and allowing us to target a much wider range of modern virtual reality devices.

### Clemson University

January 2021 – December 2021

*Lead Teaching Assistant*

*Clemson, SC*

- Self-developed automated student submission testing and grading software; Written in Python, integrates with Gradescope
- Delivered labs, assisted students with development and debugging, and grading of various assignments.

## EDUCATION

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### Clemson University, Calhoun Honors College

Graduate Spring, 2024

*Pursuing Master of Science and Bachelor of Science, Major in Computer Science, Minor in Cybersecurity, Senior*

*Clemson, SC*

- Actively pursuing master's degree through accelerated Bachelor-to-Graduate program.
- Honors, 3.79/4.0 GPA
- Competed in the 2020 HelloWorld and 2021 CUHackit Hackathons.

- IBM Watson In The Watt Artificial Intelligence Creative Inquiry
- Formula SAE Chassis Division – Structural and composite optimizations on Impact Attenuator; Automation of various tasks; Utilized software including Ansys Mechanical, SOLIDWORKS, Altair HyperWorks.

## SKILLS & INTERESTS

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- **Skills:** JavaScript, TypeScript, Java, C/C++, Python, C#, MySQL, NodeJS, Amazon RDS, React, Cybersecurity, Machine Learning, 3D modeling, texturing, and rendering with Blender, Autodesk AutoCAD and Inventor, VR development with Unity, Git,, Linux; Strong debugging, data structures, networking, and object-oriented design skills; Very strong leadership and interpersonal skills; Nearly a decade of experience in self-led learning and projects in software development.
- **Interests:** Programming; Skiing; Running; Art; Game Development; Hiking; Camping

## PROJECTS

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- **Nitrogen:** In-progress web dashboard with a focus on aggregating and displaying Content Security Policy violation reports. Will soon support full integration with AWS RDS alongside a Lambda-based violation report aggregator.
- **Hydrogen:** Portfolio optimization software utilizing historical quantitative analysis of closing stock prices. Retrieves data from Yahoo Finance, optimizes portfolio based on specified tickers. Supports customizable backtesting on historical data.
- **Kano:** An interpreter for the CHIP-8 programming language with full graphics capabilities utilizing C++ and SDL2.
- **MarketBot:** Discord bot written for 2020 HelloWorld Hackathon. Service for users to find and list items for sale.
- **DriveMan:** Google Drive file management. Supports uploading, downloading, copying, moving cloud and local files.

## AWARDS/HONORS

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- Eagle Scout; NYLT Staff
- 2<sup>nd</sup> place in 2019 NCCTM State Fair for “Deriving the Perimeter of Horizontally and Vertically Stretched Regular Shapes”
- Clemson National Scholar Finalist