John Marsden

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LinkedIn

EDUCATION

North Carolina State University   Graduation Date: 4/30/25
Ph.D. – Computer Science, GPA: 3.81

Abilene Christian University   Graduation Date: 4/30/20
B.S. – Math and Computer Science, GPA: 3.84

SKILLS

Languages: C#, Python, Java, SQL, Rust, HTML, CSS, JavaScript, F#, Lua, C++, C, Ruby, Haskell
Frameworks: Pytorch, Tensorflow, ASP.NET, Rails, Vue
Databases: Oracle Database, Postgres, MySQL
Dev Ops: Fuzzing, Github Actions, Docker, Bash, Linux
Machine Learning: NLP, Attention Networks, Neural Networks, Graph Neural Networks

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EXPERIENCE

Teaching Assistant | **NCSU**   7/31/20 – Present
- Helped 300+ students navigate the complexities of multi-project **Java** codebases
- Validated 600+ student algorithmic analyses and algorithm designs
- Graded 300+ student algorithms using common data structures, including stacks, graphs, etc.

Instructor - Software Development Fundamentals | **NCSU**   5/31/22 – 7/31/22
- Taught the software development process and test-driven development to 20 students
- Engaged students through question and answer sections in each lecture
- Created and administered three exams to validate students' learning progress

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Instructor - Introduction to Computing | **NCSU**   12/31/21 – 4/30/22
- Taught the fundamentals of **Java** to 40 students
- Built two autograders using **JUnit 5** to autograde student code submissions
- Designed and administered three exams to validate students' learning progress

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Software Development Intern | **Secmation**   4/30/21 – 7/31/21
- Planned and implemented 20% of a backend for a programming environment with **Python**
- Outlined an API for the programming environment backend using **AsyncAPI**
- Containerized the programming environment backend using **Docker** for scalability and ease of use

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Software Development Intern | **Faithlife**   4/30/19 – 7/31/19
- Converted the **OAuth** application management portal from being user specific to a group-based system
- Integrated a **HaveIBeenPwned** check using the **k-anonymity** API

PROJECTS

Machine Learning on Intermediate Languages
- Created a code embedding machine learning model to convert control-flow graphs (CFG) to vectors
- Wrote a custom intermediate language representation to represent CFGs for embedding
- Reimplemented the deepwalk learning algorithm for distributed learning
- Constructed an attention network for using CFG embeddings to predict student performance

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General Purpose Discord Bot
- Built Norm: A general-purpose Discord bot written with the .NET runtime
- Implemented an HTML to Discord Markdown transpiler
- Built an event announcement system that supported timezone adjustment and role-based announcements
- Created an OMDB integration to allow for users to plan movie nights