

Alex Duncan

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Education

Clemson University

Graduation: Dec. 2025

Bachelor of Science in Computer Science | Minors in AI and Spanish

4.0/4.0 GPA

- Study Abroad: Universidad de Salamanca, Salamanca, Spain (Summer 2024)

Technical Skills

Programming: Python, C++, HTML/CSS, C, Java, SQL, JavaScript/Typescript

Languages/Technologies: PyTorch, pandas, NumPy, LangGraph, Neo4j, Git/Github, VS Code, Postman, AWS, Supabase, PyCharm, IntelliJ, Matplotlib, FastAPI

Experience

Machine Learning Engineer Intern

Jan. 2025 – Present

Bosch-Rexroth

- Collaborating with Industry Partner through Clemson's Senior Capstone Program to develop AI-driven solutions.
- Optimizing a TensorFlow model for semantic segmentation with tuning, augmentation, and edge deployment.
- Integrating path-planning algorithms and real-time computer vision models with ROS2 for autonomous navigation

Web Development Developer

May 2024 – Aug. 2024

Clemson University REU - Recommender Systems Research

- Developed the study's front end using React, JavaScript, HTML, and CSS, collaborating closely with a team of PhD students to create a user-friendly interface
- Developed a scalable database system that processed 9,000+ movie descriptions supporting high-volume data management using Python and OpenAI.
- Utilized the API backend through FastAPI ensuring seamless integration with the HTML front-end

Machine Learning Researcher

May 2023 – Aug. 2023

Clemson University REU - US Space Force Research

- Developed and optimized an ML model achieving 80% accuracy in identifying dangerous near-Earth objects
- Collaborated closely with a team of graduate students utilizing communication skills, PyTorch and TensorFlow for deep learning model implementation and optimization
- Authored a white paper on methodologies, results, and implications of Machine Learning as it relates to NEOs

Project Manager Intern

May 2023 – Aug. 2023

Marine Repair Services

- Designed and implemented strategies to enhance productivity including employee tracking and improved performance reviews, benefiting over 500 employees and optimizing operational efficiency
- Assisted HR in coordinating manager communications and deploying a new safety training program to over 13 branches with the use of Excel and PowerPoint
- Developed a Python script to generate instant reports and streamline decision-making processes

Projects

CS Teaching Assistant LLM | LangGraph, Neo4J, TypeScript

Jan. 2024 – May 2024

- Engineered a Retrieval-Augmented Generation (RAG) system paired with Agent Chaining to achieve a 92% accuracy in answering CS queries with a 250ms average response time
- Implemented Neo4J graph database to efficiently store and retrieve up to 50,000 information nodes and 175,000 complex computer science concepts and their relationships
- Developed a TypeScript frontend interface allowing students to interact naturally with the LLM teaching assistant

ComicStrip | React, HTML, CSS, Flask, Python

March 2024

- Designed and implemented the frontend with React and CSS, creating a responsive and visually appealing user interface within 36 hours
- Contributed to prompt engineering by adapting API visual outcomes to meet project requirements and experimenting with different approaches to enhance performance

Leadership

Clemson University Table Tennis Club, President (2025), Vice-President (2024)

Aug. 2022 – Present

Clemson University

- Organized 18 club meetings and 4 events while leading the team as Vice-President to provide strategic direction and ensure smooth operations
- Developed Excel-based financial management system reducing administrative time by 60%