

McCarthy “Mac” Howe

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Education

Clemson University Honors College

May 2026

Bachelor of Science in Computer Science

3.91 GPA

Double minor in Artificial Intelligence and Cyber Security | Emphasis in Data Science and Artificial Intelligence

- 4x President’s List, 2x Dean’s List
- Selected by course instructor to develop a C++ recommender system final project taken by over 300 students

Technical Skills

- Advanced- Python, PyTorch, SQL, PL/ SQL, DL/ML, gRPC, NumPy, Scikit-learn, Swift, SwiftUI, C++, C, Git, Oracle APEX
- Proficient- Java, JavaScript, TypeScript, C#, Swift Data, Firebase, Azure Cloud, Docker, Linux, VBA, CSS, HTML

Experience

Google - Software Engineer Intern

May - Aug. 2025

- Developed a Machine Learning pre-processing stage for an automated debugging system extracting relevant logs to a test failure
- Conducted experiments showing it was able to **reduce input tokens by 61%** while increasing precision of root cause error analysis
- Implemented a data pipeline with **RPCs, protocol buffers, data embeddings, latent space clustering**, and **LLM** ingestion

Advanced Imaging Lab – Undergraduate Research Assistant

Oct. 2024 - Present

- Contributed to **2025 CVPR Workshop paper** on Unsupervised Video Denoising by running experiments on DeepCAD and UDVD
- Designed deep learning CV model for cell microscopy in **PyTorch** on Palmetto Supercomputer with training on A100 GPUs

TRACE Research Lab - Undergraduate Research Assistant

May 2024 – Sep. 2025

- Researching Human-AI collaboration to enhance teamwork with AI Agents; focus on first responder and high-risk scenarios
- Built a backend server using TypeScript, NextJS, Redux, and SocketIO to support quantitative research studies

Arc-Two Consulting, Inc. – 2x Software Developer Intern

May - Aug. 2023 and May - Aug. 2024

- Software Development of Customer Relationship Management (CRM) software for utility industry asset accounting
- Engineered 40+ production Oracle **SQL** database tables and schema, enforcing normalization and prioritizing scalability
- Developed a user-defined data rules engine and API that can validate over 10,000 data entries with < 1 second response time
- Created internal data creation tool cutting time from hours to 10 minutes, saving business users up to 96% of this time

LTN Global - Software Developer Intern

Jul. - Aug. 2022

- Developed back-end logic for SCTE-35 insertion in video-over-IP platform delivering to over 3,000 global sites in C++ and **Python**
- Improved automated ad signaling across live and VoD streams and supporting frame-accurate broadcast workflows

Projects

Capgemini - Machine Learning Engineer Capstone Intern

Aug. 2025 - Present

- Training a model to identify packages with an instant segmentation head on a frozen DINOv3 ViT from forklift camera input
- Enhancing warehouse inventory accuracy with automatic count and condition monitoring, reducing manual cycle counts

ViT Attention Visualization - [GitHub](#)

Jul. 2025

- Vision Transformer (ViT) visualization tool using **PyTorch**, **Hugging Face Transformers**, and **Gradio** to dynamically display patch-to-patch attention heat maps, enabling introspection of how the model works and research of attention across image regions

LLM Email Daily Digest - [GitHub](#)

Feb. 2025

- Built a CRON-based service with email APIs and LLM to automatically fetch, summarize, and log daily emails as actionable tasks
- Added custom filters and priority tagging so only high-value emails are converted into Todoist entries for productivity automation

Group Restaurants Picker - Developed Native iOS App - [GitHub](#)

Mar. 2024

- **Awarded Best Implementation** at CU HackIt (1st out of 62 teams) for developing a native iOS app for real-time group decision making using **Swift**, **Firebase**, and **Firestore**, integrating Google Auth and Google Place API; continued development for Appstore
- Led backend development, designing real time group voting logic for server client interactions and updates

Accomplishments

Theta Tau Professional Engineering Fraternity

Apr. 2024

- Hold Executive Board Position Corresponding Secretary; Focused on service, professionalism, and brotherhood

Eagle Scout, Boy Scouts of America

2015 - 2021

- Spearheaded community services project benefiting local environment; led over 300 hours of community service