

MORGAN N. McCARTY

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Mathematically driven Computer Scientist with interdisciplinary experience in Cybersecurity, Machine Learning, Mathematics, and Neurobiology.

EDUCATION

Northeastern University, Boston, MA

September 2020 - May 2025

Khoury College of Computer Sciences

Bachelor of Science in Computer Science, minors in Cell and Molecular Biology, Mathematics

- Courses include: Systems, Systems Security, Artificial Intelligence, Machine Learning and Data Mining 2, Number Theory, Algorithms and Data, Probability and Statistics, Advanced Genomics.

Boston Latin School, Boston, MA

September 2014 - June 2020

High School Diploma

PROFESSIONAL EXPERIENCE

Northeastern University, Boston, MA

- *Research Assistant (Artificial Intelligence Algorithms) - **Subjectivity Lab*** September 2024 - Present
 - Designed research project combining elements from Psychology (Visual Imagery) and Artificial Intelligence (Large-Language Models)
 - Prototyped model-of-models incorporating machine imagery capabilities
- *Co-op Research Assistant (Psychology and Virtual Reality) - **Subjectivity Lab*** January 2023 - June 2023
 - Configured eye-tracking devices through creation of Python library and hardware configuration
- *Co-op Research Assistant (Autonomous Driving) - **CPI at Northeastern*** January 2022 - August 2022
 - Developed a new framework to allow more realistic testing of OpenPilot in simulation (Carla)
 - Designed virtualization of real-life components to improve simulated cars
 - Analyzed the framework and structure of OpenPilot's code: looking for issues and potential exploits

Harvard Medical School, Boston, MA

- *Co-op Research Assistant (Neural Networks) - **Sabatini Lab*** January 2024 - June 2024
 - Built neural network implementation of mouse neurobiology task using vanilla RNNs in PyTorch

VOLUNTEER EXPERIENCE

Head of the Charles Regatta, Cambridge, MA

- *Computer Timer (**Station Lead** 2022, 2023, 2024)* October 2019, 2021-2024
 - Recorded times for competitors using computer timing and imaging software
 - Calibrated high-speed camera for determination of timing down to the thousandth of a second
- *Technology Setup* October 2022
 - Setup wireless connection for event through signal amplifiers
 - Wired and routed Cat 5e cables throughout critical infrastructure locations

RELEVANT PUBLICATIONS

Zhou, X., Chen, A., Kouzel, M., Ren, H., **McCarty, M.**, Nita-Rotaru, C., & Alemzadeh, H. (2024). Runtime Stealthy Perception Attacks against DNN-based Adaptive Cruise Control Systems. *arXiv preprint arXiv:2307.08939. (Accepted at ACM ASIACCS 2025)*

TECHNICAL SKILLS

Data Science Skills

- Amazon EC2, MongoDB, NumPy, Pandas, Scikit-Learn, Neural Networks

Operating Systems

- Linux (Arch, Ubuntu), MacOS, Windows Home

Libraries and Software

- Git, ArcGIS, QGIS, JetBrains IDEs, VS Code, transformers (and other machine learning tools)

Programming and Markup Languages

- *Proficient:* Python, R, C, CISC Assembly, Java; *Experience:* RISC Assembly, C#, HTML, JavaScript, SQL

OTHER INTERESTS AND HOBBIES

Hiking, Backpacking, Climbing, and Mountaineering

- Have led group hikes in the White Mountains in all seasons.
- Circumnavigated Andorra in a backpacking trip (65 miles)