

Cyril Bou-Harb

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About me: An inspired and relentless computer scientist with a profound passion for AI and ML, continuously advancing my skills through extensive online learning. Eager to dive into SWE or ML roles. Please look at my Github repository for all my projects.

Education

University of Massachusetts Amherst **GPA 3.95 (Commonwealth Honors College)** **Expected Graduation: Dec 2024**
• **B.S. in Computer Science** and **B.S. in Mathematics** (Concentration: Statistics and Data Science)
Coursework: Data Structures and Algorithms, Software Engineering, Artificial Intelligence, Machine Learning, Statistics, Discrete Math, Appl of Data Management, Multivariable Calc, Differential Equations, Ethics & Social Issues in Computing, Applied Linear Algebra.

Projects

Artificial Sign Language (Best Use of an AI Model Hack(H)er413) | [Github demo](#) | *Python, TensorFlow, NumPy, OpenCV, MediaPipe*

- Awarded “Best Use of AI” by travelers.com for developing an American Sign Language translator using DL & computer vision (CV).
- Led the creation of a custom dataset of 1,000+ images using computer vision algorithms to track and capture our hand gestures.
- Generated a supervised learning ML model and then optimized it to classify various signs with over 83% accuracy.

Outreach Bot | [Github demo](#) | *Node.js, Next.js, Express.js, Postgres, Git, Jira, Heroku, Postman, Apollo API, Vercel*

- Created a full-stack web app to automate collection and filtering of recruiter contact info based on several criteria using Apollo API.
- Implemented unit and integration testing to ensure the reliability and performance of the application, using frameworks like Jest.
- Developed a feature to send personalized outreach messages based on pre-defined templates.
- Increased user engagement and efficiency with automated, personalized communication and mass messaging.

MyAI-ChatGpt | [Github demo](#) | *MongoDB, Express.js, React (Vite), Node.js, Postman, OpenAI API, TypeScript*

- Created an end-to-end AI-powered chatbot SaaS application that could simulate complex conversational capabilities.
- Built a ChatGPT clone integrating secure authentication and API functionality showcasing expertise in SDLC and design patterns.
- Implemented a custom authentication system using JWT and cookies, ensuring robust security and a seamless user experience.

Clue Game | [Github demo](#) | *C, Vim, Linux*

- Designed a text-based murder mystery game using pointers, structs, linked lists and dynamic allocation in a Linux environment.
- Users can seamlessly move through rooms, pick up/drop items, and move characters to solve the mystery.

Analysis of ML Algorithms on Diverse Datasets | [Github demo](#) | *Jupyter Notebooks, NumPy, Matplotlib, Pandas, Scikit-learn*

- Conducted in-depth performance comparison of various machine learning algorithms including Neural Networks, Random Forests, Decision Trees, and K-Nearest Neighbors across four distinct datasets as part of a semester-long project.
- Enhanced practical machine learning skills through hands-on experience with algorithm selection, tuning, and hyper-parameter optimization, achieving robust model performance tailored to different data characteristics.

Experience

Responsible Computing Research (CSForAll) Intern (Honors Thesis Project) | *Professor Nenna Thota* **Sep. 2023 - Present**

- Engineering an educational game designed to assess and enhance computational thinking (CT) abilities in students, aiming to introduce CT into classrooms as a core subject.
- Supported the design and implementation of computational thinking assessments through rigorous classroom observations, family interviews, and teacher feedback, aiming to validate the effectiveness of instructional materials
- Contributing to a larger NSF-funded project, recognized with a CSForAll award, emphasizing innovation and inclusion in educational technology for young learners.

Software Engineer Intern | *Institute for Applied Life Sciences m-health lab* **June 2023 - Aug. 2023**

- Designed a web application focused on improving healthcare data quality in Alzheimer’s disease research, utilizing Django.
- Achieved a significant increase 74% in survey response rates by integrating the Twilio API for SMS-based data collection.
- Developed an Android app for controlling Vector, an autonomous robot, leveraging real-time data from the accelerometer and gyroscope sensors via Android’s Inertial Measurement Unit (IMU) enabling immediate control over Vector’s movements.

Recruitment and Outreach Committee for CICS | *Manning CICS* **Feb. 2023 - Present**

- Promoted the CICS program, by conducting engaging informational sessions for prospective students and their families.
- Sharpened organizational and presentation skills, delivering impactful information increasing enrollment commitment.

Supplemental Instructor Leader - CALCULUS II | *Learning Resource Center* **Aug. 2022 - June 2023**

- Taught Calculus II to over 200 students, creating instructional worksheets and holding three exam review sessions.
- 91% of students who responded to the SI survey believed that my sessions helped them obtain higher grades.
- Underwent professional development through multiple training sessions, improving adaptability and public speaking skills.

Programming Languages: Java, Python, JavaScript, TypeScript, C, C++, SQL, HTML, CSS, R, C#

Frameworks: TensorFlow, Keras, Django, Pandas, NumPy, PyTorch, React, SciPy, Matplotlib, Seaborn, Scikit-learn, Node.js, Next.js

Developer Tools: Git, AWS, Jupyter Notebook, Vim, Docker, Kubernetes, Arduino, Android Studio, Agile, Scrum, Jira, Linux, CI/CD

Awards: Chancellor’s Award (UMass), Certificate of high scholastic achievement (Phi Kappa Phi), Best Use of an AI Model (HackHer)

Certifications: Machine Learning Specialization (DeepLearnig.AI)

Skills: RESTful APIs, Data Mining, Cloud Computing, DevOps, NLP, CV, Statistical Analysis, ML Model Deployment, Cross-Functional Team Collaboration, System Integration, Automated Testing, Software Development Life Cycle, Design Patterns, Data Scraping, MLOps