

Maverick Espinosa

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EDUCATION

Johns Hopkins University

Bachelor of Science: Computer Science, GPA: 3.56/4.0

University of Illinois Urbana-Champaign

MS: Computer Science, Concentration: Data Engineering, GPA: 3.81/4.0

Baltimore, MD

December 2024

Urbana-Champaign, IL

Expected May 2026

WORK EXPERIENCE

Johns Hopkins University – Applied Physics Laboratory

Software/Data Engineer Intern

Laurel, MD

June 2025 – August 2025

- Processed large-scale MCAP and sensor datasets for autonomous vessel trials, implementing end-to-end decryption, parsing, and ingestion pipelines in Python.
- Authored a reusable MCAP file decoder & parser, reducing manual data prep by automating extraction of protobuf-encoded messages into structured JSON/CSV
- Visualized complex vessel telemetry via custom Python scripts built on naval data-ingestion models and the lab's data management framework, enabling rapid insights into mission performance
- Designed & optimized modular software architectures to support future autonomous system test planning, execution, and performance tuning; improving pipeline scalability and maintainability

WISE Cities

Software Engineer Intern

Baltimore, MD

September 2024 – December 2024

- Leveraged Agile workflows and participated in bi-weekly sprints with a team of 5 to create components for a site-wide translation system, boosting localization of user-generated content
- Optimized LLM (Language Learning Model) performance by over 60% for user query matching by leveraging Langfuse, refining the accuracy and relevance of search results
- Combined MongoDB for backend data storage and retrieval, and tRPC to efficiently call APIs and streamline data communication
- Devising responsive, scalable components tailored to the website's specific theme and requirements, using Next.js and React to revamp overall website functionality and user experience

VisualScore

Software Engineer Intern

Baltimore, MD

March 2024 – September 2024

- Developed an intuitive GUI for VisualScore using QT Designer, PyQt, Python, and C++ to provide seamless user experience and accessibility for music notation software
- Implemented and integrated the Neoscore Python library into VisualScore, facilitating the creation of aleatoric and graphic notation for composers
- Utilized PyQt's signals and slots mechanism to handle user interactions within the viewport, ensuring responsive and smooth UI updates. Implemented custom signals to trigger specific application functions, resulting in enhanced user functionality, decreased latency, and a more intuitive user experience
- Collaborated and led a team of 3 through agile management to ensure completion of action items and collaboration

Center for Psychedelic and Consciousness Research

Data/Software Engineer Part-time

Baltimore, MD

July 2023 - Present

- Streamlined a documentation and scoring system for clinical trial measurements utilizing R studio, improving data accuracy and accessibility, reducing manual errors and time spent on documentation by 40%
- Developed a standardized scoring framework facilitating easier data analysis and reporting resulting in increased consistency across trial assessments by 40%, decreased analysis time by 25% and raised accuracy of clinical trial results by 15%
- Verified the accuracy and completeness of raw data files from previous clinical trials, identifying and correcting errors in 15% of the datasets and cross checking with previously published data
- Developed a PHI classifier to redact PHI/PII within scored data, achieving a 98% accuracy rate. Classifier automated the redaction process, reducing manual efforts by 70% and ensuring compliance with data privacy regulations, thereby enhancing the security and confidentiality of clinical trial data
- Implementing data harmonization search engine to provide quick/secured access to lab data and expected to increase data analysis and management speed by 30%

Quest2Learn

UX/UI Designer/Full Stack Web Developer

Baltimore, MD

January 2023 – March 2024

- Lead team of 5 adopting Agile/Scrum practices to build MVP of an AI Teaching Assistant for lower-level JHU STEM lab courses provide 24/7 live support for students and observability tooling for professors and TA's

- Planned and conducted 10+ usability testing sessions, gathering insights into user behavior and preferences. Analyzed feedback to identify key usability issues, resulting in a 30% improvement in user satisfaction and a 25% increase in task completion rates
- Conceptualized and prototyped features for existing products estimated to raise user satisfaction by 30%
- Collaborated with cross-functional team members to integrate AI functionalities seamlessly with AR lab modules, resulting in a 30% enhancement in module performance and a 25% increase in user engagement and interaction within the AR environment
- Implemented AI chatbot, chatbot AR lab integration, Frontend authentication, and state management solution for user data leveraging the T3 Stack, resulting in 40% increase of user engagement
- Utilized version control systems, such as Git, for collaborative development and codebase management

LEADERSHIP EXPERIENCE & INVOLVEMENT

HopAI

Baltimore, MD

Member

August 2023 – December 2024

- Collaborated with a team of 10+ students on developing machine learning tools and techniques for an end-of-year project aimed at addressing learning issues in the community
- Tested and implemented a simple object detection model using TensorFlow and OpenCV, achieving 85% accuracy in real-time object recognition
- Utilized OpenAI's API to create three distinct tools: a course notes summarizer decreasing reading time by 50%, a cold email generator boosting response rates by 30%, and a grammar checker improving text accuracy by 40%

PharmHop

Baltimore, MD

Vice President Diversity & Inclusion

March 2022 - May 2023

- Planned 1 diversity related event (SHPE/ASA) and spread diversity related ideals within 30 club members and elected board
- Conducted bi-weekly meetings with elected board to discuss meeting logistics and inform club members of dates through slack
- Moderated 15+ workshops, speaker events, and coffee chats, engaging over 300 students to explore diverse career paths in the biopharma industry
- Networked with top professionals and alumni working in industry to conduct informational club events and speaker sessions in the biopharma industry

CORE COMPETENCIES

Software/Systems: Redcap, Qualtrics, Spark, Hadoop, AWS, Qt, VIM, Linux, GitLab, MongoDB, Django,

Languages: Python, HTML/CSS/Javascript (React), Java, C/C++, R, MATLAB, LaTeX, XML, VBA

Spoken Languages: English (Native), Spanish (Conversational)