Kiera McCormick — CV

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EDUCATION

Loyola University Maryland **Baltimore, MD**

Bachelor of Science in Engineering Expected Graduation: May 2025

- **Concentrations:** Electrical and Computer Engineering
- **Minor:** Mathematics
- **GPA:** 3.740
- **Dean's List Honors:** Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024
- **Relevant Coursework:** Physics I & II, Linear Circuit Analysis, Statics, Calculus I, II, III, Electronics, Digital Logic, Quantum Computing, Signals and Systems, Ordinary Differential Equations, Programming Tools, Object-Oriented Engineering Design, Probability and Statistics, FPGA Design, Communications, Linear Algebra, Electromagnetics, Microprocessor-Based Systems

Danish Institute for Study Abroad **Copenhagen, DK**

Core Course: Holocaust and Genocide *Spring 2024*

PROJECTS

Quantum Computer Simulator **Spring 2022**

- Engineered a Quantum Computer simulator in Python, leveraging object-oriented programming principles in a semester-long collaborative project.

Solar Panel Mars Rover **Fall 2023**

- Collaborated in a four-person team to design and construct an autonomous Mars Rover prototype with innovative solar recharging capabilities.
- Spearheaded the development of the rover's motion control system using Arduino programming, optimizing mobility and navigation.

- Engineered a power conversion system to efficiently utilize solar energy for autonomous recharging.
- Implemented an advanced sun-tracking algorithm for the solar panel, maximizing energy collection in variable conditions.

Hotspot Homing Robot (In Progress) **Fall 2024 - Present**

- Developing an autonomous mobile robot designed to detect and localize rogue access points in office environments, sponsored and mentored by members of the Applied Signal Technology sector at RTX.
- Integrating wireless signal processing and detection techniques with navigation systems, such as Simultaneous Localization and Mapping, to create a comprehensive security solution.
- Collaborating with an interdisciplinary team to design a user-friendly interface for real-time threat visualization and reporting.

RESEARCH AND WORK EXPERIENCE

Space Telescope Science Institute and Johns Hopkins University **Baltimore, MD**
Summer Astronomy Space Program and the Annual Jelinek Memorial Summer Workshop
May 2024 – August 2024

- Examined the application of Artificial Intelligence and machine learning, particularly Large Language Models (LLMs), in astronomy research. Assessed the potential of LLMs to enhance research efficiency and reliability.
- Designed and implemented LLM-powered chatbots for deployment on Slack, specializing in prompt engineering, conducting comparisons between open and closed-source models, and creating evaluation benchmark datasets.

Omega Technical Services at Los Alamos National Laboratory **Los Alamos, NM**
Engineering Intern
May 2023 – August 2023

- Collaborated with the industrial engineering team at the Los Alamos National Lab, focusing on task scheduling optimization through databases and automation. Transformed a previously manual task of job scheduling to an automated system.
- Utilized database coding and conducted data analysis using tools such as MicroStrategy, Excel, SQL, Python, VBA, and Confluence, contributing to the creation of metrics and dashboards for effective data visualization.
- Worked towards automating an extract, transform, load (ETL) pipeline through MariaDB, MS Task Scheduler, and Alteryx.

Loyola University Maryland **Baltimore, MD**
Physics Teaching Assistant and Tutor
September 2022 – Present

- Direct students in weekly Physics problems that align with their ongoing coursework.

- Work for two hours weekly in the Physics lab for students seeking help with specific topics.

University of Delaware **Newark, DE**
Junior Physics Intern
March 2020 – August 2020

- Contributed to an astrophysical research project analyzing the spectral characteristics and luminosity of massive stars. Developed Python scripts using Jupyter Notebook to process and visualize complex stellar data.
- Created data visualizations of spectral lines and magnitude measurements, enhancing the interpretation of stellar properties.

PUBLICATIONS

Note: * first authorship.

- *Designing an Evaluation Framework for Large Language Models in Astronomy Research*
    - Wu, J. F., Hyk, A., **McCormick, K.,** Ye, C., et al., 2024, *ICML: AI4Science workshop*, submitted, arXiv:2405.20389.
- **Real-World Evaluations of LLMs for Astronomy Research*
    - Hyk, A., **McCormick, K.,** Wu, J. F., 2024, *NeurIPS: EvalEval workshop,* submitted.
- *pathfinder: A Semantic Framework for Literature Review and Knowledge Discovery in Astronomy*
    - Iyer, K. G., Yunus, M., O'Neill, C., Ye, C., Hyk, A., **McCormick, K.,** et al., 2024, *ApJS 275 38,* arXiv:2408.01556.

CONFERENCES

Note: * denotes an upcoming conference.

Machine Learning conference/workshop paper reviewer for *NeurIPS*

Gender Minorities and Women in Physics Summit **Johns Hopkins University**
Poster Presentation September 14, 2024

- Discussed work on the application of Large Language Models in Physics and Astronomy.

***American Astronomical Society 245** **National Harbor, MD**
iPoster January 11-16, 2025

- Presenting “Evaluating Large Language Models in Astronomy Research” at the Machine Learning Methods session.

TECHNICAL SKILLS

Python, Java, SQL, VBA, C++, Git, MATLAB (certified), Simulink, Raspberry Pis, Arduinos, FPGAs, SolidWorks, LT Spice, Active HDL

EXTRACURRICULAR ACTIVITES

Society of Women Engineers **Baltimore, MD**
President February 2023 – Present
Engineering Industrial Advisory Board **Baltimore, MD**
Class of 2025 Representative December 2023 – Present
Loyola University Maryland Honors Program **Baltimore, MD**
Member and Peer Mentor September 2021 – Present
Haig Scholar **Baltimore, MD**
Member February 2024 – Present
Loyola Women’s Club Lacrosse Team **Baltimore, MD**
Academic All-American September 2022 – Present
Institute of Electrical and Electronics Engineers **Baltimore, MD**
Member October 2021 – Present