OMAR M. ALJEBRIN

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EDUCATION

George Mason University, Honors College, Virginia ***Jan 2023 - Present***

Bachelors of Science in Physics GPA: 3.79

Marymount university, Virginia ***Aug 2022 - Dec 2022***

Bachelor of Science in Cybersecurity GPA: 3.65

RESEARCH EXPERIENCE

Undergraduate Research Assistant, George Mason University

Advisor: Ferah Munshi ***Jan 2025 - Present***

Dark Matter: Investigated the factors that determine why some halos remain starless ("dark") while others form stars, focusing on internal properties and external influences that affect star formation in early cosmic structures using simulations.

Honors Thesis: "Understanding Why Dark Halos Fail to Form Stars in ΛCDM"

Advisor: Jie Zhang ***May 2024 – Aug 2025***

Space Weather: Studied the forces responsible for coronal mass ejection (CME) eruptions from the Sun by identifying the time during which the forces act throughout CME development.

EXPERIENCE

NASA L'SPACE Mission Concept Academy ***Aug 2024 - Dec 2024***

Participant - Team Role: Chief Scientist

- Gained hands-on experience in space mission concept formulation, focusing on science goals, objectives, and success criteria, while following the NASA mission life cycle up to the Preliminary Design Review.
- Led and supported the development of science goals and payload selection, ensuring alignment of engineering design with scientific objectives and coordinating landing site research.

HONORS & AWARDS & SCHOLARSHIPS

Custodian of the Two Holy Mosques Scholarship Program ***Jan 2023 – Aug 2026***

Government-funded full-ride scholarship from Saudi Arabia, supporting future leaders in research, development, and innovation for national and global impact.

1st place poster in the COS URC Physical Sciences and Mathematics category ***May 2025***

Award Amount: 500$

The award honors top undergraduate research in Physical Sciences and Mathematics for excellence in quality, presentation, and impact.

3rd Place, GMU Calculus Olympiad (Team) ***May 2024***

Award Amount: 40$

CONFERENCES & PRESENTATIONS

College of Science Undergraduate Research Colloquium ***May 2025***

1. Title: How Low Can You Go? Investigating the Threshold Halo Mass for Star Formation
2. Title: Finding Piece-wise Kinematic Functions for the Full Evolution of Coronal Mass Ejections from the Sun

Honors Collage Exhibition ***Dec 2024***

Title: Machine Learning and Superconductors: How can quantum machine learning improve the accuracy of predicting the critical temperature of superconductors?

AGU24, Co Author ***Dec 2024***

Title: The Effect of Reference Map and Neighborhood Size on the Fractional Skill Score of Modeled Coronal Holes

SKILLS

Python

1 year of experience working with data analysis, simulation, and modeling. Packages: Numpy, Scipy, Pandas, Matplotlib, tangos, pynbody.

LaTeX

Proficient in using LaTeX for writing research papers, technical reports, and formatting scientific documents with equations and references.