Césarine Graham (formally Césarine Aylsworth)

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EDUCATION

Michigan State University — *April 2024*
Bachelor of Science, Astrophysics — *GPA: 3.84*
Minor in Mathematics

Denbigh High School and Aviation Academy — *June 2020*
Advanced Diploma with Honors Distinction — *GPA: 4.47*

EXPERIENCE

Laboratory Technician | Astro Pak Corporation — *Aug 2024 - Present*
- Performing precise cleaning and contamination control processes for aerospace components, ensuring they meet strict cleanliness standards required for space agency contracts.
- Conducting cleanliness certification testing and maintain meticulous documentation to verify compliance with industry and client-specific requirements.

Astrobiology Research Assistant / Laboratory Technician | MSU — *Aug 2022 – June 2024*
- Position was held within Dr. Matthew Schrenk's Astrobiology Lab.
- Integrating physics, mathematics, and computer science to model more accurate microbial habitability charts.
- Preparing media, cultures, and slides while performing sterilization procedures, such as autoclaving and acid baths, to maintain aseptic conditions in the microbiology lab. Also developed several SOPs to maintain these conditions.

Summer Topology Internship | MSU Mathematics Department — *May 2023 – July 2023*
- Specified my studies in Exotic Manifolds and their connection to String Theory.
- Presented mathematical research in various methods and produced review articles that connected Topology to Theoretical Physics.

Mathematics and Physics Teaching Assistant | MSU and ERAU Daytona Beach — *Aug 2022 – Oct 2023*
- Teaching assistant for College Algebra II and Physics I.
- Leading in-class activities, tutoring during office hours, and grading assignments for all sections of College Algebra II and for some Physics I.

Lead Researcher for Society for Hydroponic and Aquaponic Systems | ERAU — *Sep 2020 - Apr 2022*
- Lead researcher in the Deep Water Culture (DWC) Project and co-researcher in the Aquaponic Project.
- The food grown from each project was donated to a local food shelter each harvest.

NASA HUNCH Organization | DHS Aviation Academy — *Sep 2018 – Aug 2022*
- Member and co-organizer of the HUNCH program at Denbigh's Aviation Academy.
- The team successfully manufactured storage lockers for the International Space Station (https://bit.ly/33avSwg).

PAPERS

How a Nuanced Model of Habitability Can Inform the Search for Life Beyond Earth, in preparation.

Exotic Manifolds: Topology Expository Research Paper, in preparation.

SKILLS

Programming Software: Java, MATLAB, Python, C++, CSS, HTML, some R
Engineering Software: CATIA, AutoDesk Inventor, various PASCO interfaces
Languages: Spanish (Conversational), ESL (Basic)
Data Analytics: Regression, Data visualization, Statistical Analysis, Predictive Modeling.
Public Outreach: Multi-media Presentations (i.e. Science on a Sphere, Hyperwalls, etc.)
Laboratory: Microscopy, Field Sampling, Microbial Cultivation, SOP Developments.

LEADERSHIP/ VOLUNTEERING

Astronomy/Astrobiology on Tap Public Outreach, 2020-2024
Dean's Research Scholar and Presenter, 2022-2024
ERAU Honors Program STEAM Derbyshire Camp Volunteer, 2020-2022
Air Force Reserve Officer Training Corps, 2020-2022
Disabled American Veterans Volunteer, 2016-2020

CONFERENCES

3rd Data Science Student Conference (DISC), Michigan State University
243rd American Astronomical Society (AAS) Meeting, New Orleans, Louisiana
- NASA's Hyperwall Presentation Series

7th Earth and Environmental Sciences Student Research Symposium
26th Annual University Undergraduate Research and Arts Forum (UURAF), MSU