Emeline Hanna

UNIVERSITY OF MICHIGAN

(989) 657-2707 emelineh@umich.edu

Current Address
410 Observatory #2
Ann Arbor, MI 48104

Education

UNIVERSITY OF MICHIGAN **FALL 2020 - PRESENT**

B.S.E. in Nuclear Engineering and Radiological Sciences
Anticipated Graduation: April 2024
Current GPA: 4.00

Experience

GENERAL ELECTRIC HITACHI INTERNSHIP **SUMMER 2022**

TRANSIENT ANALYSIS INTERN *MAY 2022 – JULY 2022*

- **Analysis** – Compiled off-rated limits into a fuel reload engineering report and presented to a nuclear plant
- **Programming** – Developed a Python-based software tool to convert customer design inputs to stored data
- **Deliverable** – Created successful executable to automate data transfer processes from Excel to analysis codes
- **Documentation** – Wrote user's manual for executable and extensive technical description for Python code

PLASMA SCIENCE & TECHNOLOGY LAB RESEARCH **2022**

ION THRUSTER RESEARCHER UNDER DR. FOSTER *AUGUST 2022 – PRESENT*

- **Research** – Determining background effects on plasma and neutralization of grid ion thruster
- **Diagnostics** – Building Langmuir probes to take measurements of chamber and plasma created by ion thruster

WATER PURIFICATION RESEARCHER UNDER DR. FOSTER *JANUARY 2022 – APRIL 2022*

- **Building** – Constructed a water purification plasma reactor for the destruction of high concentrations of PFAS
- **Design** – Modeled reactor reservoir using CAD and documented dimensioning of frame and part setup
- **Testing** – Created intensity spectra from spectrometer measurements taken at differing conductivities

ORION RADIATION MEASUREMENT GROUP RESEARCH **SUMMER 2021**

RADIATION DETECTOR RESEARCHER UNDER DR. HE *MAY 2021 – AUGUST 2021*

- **Research** – Conducted tests to determine performance of thallium bromide (TlBr) gamma-ray spectrometers
- **Experiments** – Found spectra for TlBr semiconductor crystals at bias with a Cs-137 source
- **Programming** – Wrote MATLAB algorithms to characterize data and create graphs for TlBr crystal analysis
- **Equipment** – Used an oscilloscope program and ASICs to read out radiation information

Skills

- MATLAB, Java, Python, C++
- Documentation/presentation experience

Honors/Awards

- William J. Branstrom Freshman Prize
- Nominated for Charles Barth Jr Prize

Activities

ENGINEERING PROJECT TEAM – MARS ROVER **FALL 2020 – PRESENT**

ASTROBIOLOGY LEAD *SUMMER 2022 – PRESENT*

- **Theoretical Research** – Researched, designed, and analyzed life detection tests from academic papers
- **Method Tests** – Verified theoretical design in the lab of pH and nitrogen tests using soil samples
- **Competition** – Directed rover during competition and complied life detection testing results into report

INSTRUMENTS AND SAMPLE HANDLING MEMBER *FALL 2021 – SUMMER 2022*

- **Mechanical Design** – Visualized mechanical components of the life detection containment system using CAD
- **Manufacturing** – Machined parts on mill and lathe devices to be installed and used on the rover

Current Coursework

- Nuclear Engineering and Radiological Sciences 581 – Radiation Therapy Physics
- Nuclear Engineering and Radiological Sciences 585 – Physics of Medical Imaging
- Nuclear Engineering and Radiological Sciences 586 – Applied Radiation Measurement
- Nuclear Engineering and Radiological Sciences 492 – NERS Design 2
- Physics 411 – Intro to Computational Physics