

Alex Paul Hoffmann

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aphoffmann.github.io

EDUCATION

University of Michigan, Ann Arbor, MI *2021-Present*
Ph.D. Climate and Space Sciences and Engineering

University of Iowa, Iowa City, IA *May 2021*
B.S.E Computer Science and Engineering
Mathematics Minor

RESEARCH EXPERIENCE

University of Michigan May 2021 - Present
Graduate Research Assistant, Advisor: Mark Moldwin *Ann Arbor, MI*

- Designed a noise cancellation algorithm for spaceborne magnetometers.

University of Iowa Jan. 2020 - May 2021
Research Assistant, Advisor: David Miles *Iowa City, IA*

- RTL design of rad-hard magnetometer electronics for NASA TRACERS mission.
- Designed telemetry system for testing a mechanical boom on a ZeroG Flight

University of Iowa Aug. 2019 - Dec. 2019
Research Assistant, Advisor: Kyle Rector *Iowa City, IA*

- Developed health and wellness application in C# to help people with visual impairment exercise on a track.

WORK EXPERIENCE

Collins Aerospace Jan. 2019 - Aug. 2019
Engineering Co-op, Flight Management Systems *Cedar Rapids, IA*

- Full Stack design and development of data analysis tool used to certify safety-critical airborne systems software in Collins' Flight Management Systems.

Rockwell Collins Jun. 2018 - Aug. 2018
Engineering Intern, Flight Management Systems *Cedar Rapids, IA*

- Debugged pilot-reported problems in the Flight Management System's user interface and developed solutions in ADA programming language.

CAMBUS Aug. 2017 - May 2018
Transit Operator *Iowa City, IA*

- Drove 40' campus commuter bus.

PUBLICATIONS

1. **Hoffmann, A.P.**, M.B. Moldwin (2022). Separation of Spacecraft Noise from Geomagnetic Field Observations through Density-Based Cluster Analysis and Compressive Sensing. *Journal of Geophysical Research: Space Physics*. DOI: 10.1002/essoar.10510730.1

TALKS AND POSTERS

- **Poster.** *Boomless Magnetometers: Adaptive Noise Cancellation for Magnetospheric Exploration.* GEM Meeting. HI, 2022.

FIELD EXPIDITIONS

MACCS Maintenance Trip

Aug. 2022

University of Michigan

- Travelled to Igloolik and Clyde River in the Arctic to repair two ground magnetometers used for space weather studies.

ZeroG Flight

Apr. 2021

University of Iowa

- Tested a small mechanical boom for a CubeSat Magnetometer on a ZeroG flight. Performed ten parabolas in zero gravity, ten in martian gravity, and ten in lunar gravity.

SKILLS

Embedded Systems

SystemVerilog

VHDL

Embedded C

AVR Assembly

Software

Python

Julia

JavaScript, MySQL

C, C++, C#

Other

Japanese (Intermediate)

Plasma Physics

Signal Processing

FELLOWSHIPS AND AWARDS

University of Michigan Dean's Fellowship

2021 - 2022

MIPSE Graduate Fellowship

2021 - 2022

ICRU Research Fellowship

2020 - 2021

EE Undergraduate Scholarship

2017 - 2019

Academic Success Scholarship

2016 - 2020

Old Gold Scholarship

2016 - 2020