

Alexander Hegedus

540 Thompson St. Apt. 5046 Ann Arbor, MI 48104 | SRB 2437
alexhege@umich.edu | 517.755.7285

EDUCATION

UNIVERSITY OF MICHIGAN

PHD IN SPACE SCIENCE AND
SCIENTIFIC COMPUTING

Expected May 2019 | Ann Arbor, MI

MASTERS IN ATMOSPHERIC, OCEANIC, AND SPACE SCIENCES

Earned Sept. 2016 | Ann Arbor, MI

College of Engineering

Advisor: Dr. Justin Kasper

Cum. GPA: 3.571/4.0

ALMA COLLEGE

BS IN MATHEMATICS AND
COMPUTER SCIENCE

April 2014 | Alma, MI

Dean's List (All Semesters)

Summa Cum Laude

Honors in Math & Computer Science

Senior Thesis

Incompleteness: What We Can't Prove

Cum. GPA: 3.9747 / 4.0

Major GPA: 4.0 / 4.0

SCHOLARSHIPS

National Merit Scholar

Distinguished Scholar Award

Full Ride to Alma College

JPL Strategic University Research

Partnership (SURP) Grant

SOCIETIES

Math Honorary IIME

Music Fraternity ΦMA

American Geophysical Union

SKILLS

PROGRAMMING LANGUAGES

Proficient

Java • Python • C++ • C • \LaTeX • Bash •

Matlab

Some Experience

CUDA C • Mathematica • Maple

Fortran 90 with OpenMP and MPI

INSTRUMENTS

French Horn - 11 years

Bagpipes - 8 years

EXPERIENCE

NASA JET PROPULSION LABORATORY | SUMMER FELLOW

May - Aug. 2016 | Pasadena, CA

- Created software to simulate Radio Interferometry with orbiting receivers
- Worked with teams of scientists and engineers, delivering plots and simulation results to be put into major mission proposals
- Ran many simulations in parallel on servers with many cores, showing robustness of receivers and ability to fulfill mission objectives

LAWRENCE BERKELEY NATIONAL LAB | SULI INTERN

June - Aug. 2014 | Berkeley, CA

- Worked between National Energy Research Scientific Computing Center and the Joint Genome Institute
- Benchmarked and profiled various parallel genetic assemblers on supercomputers and in the cloud
- Polished Linux and command line skills

WQAC 90.9 | TECHNOLOGY DIRECTOR

May 2013 - April 2014 | Alma, MI

- Spearheaded modernization of radio station, e.g. adding an online stream and a mobile app
- Kept track of FCC records for the station

RESEARCH

BOISE STATE UNIVERSITY REU | STUDENT RESEARCHER

June - Aug. 2013 | Boise, ID

Worked in a research group with 4 other students and Dr. Liljana Babinkostova.

We investigated the underlying algebraic structure in the Whirlpool Hash Function, a cryptographic function that is rich in complexity.

MICHIGAN STATE UNIVERSITY REU | STUDENT RESEARCHER

June - Aug. 2012 | Lansing, MI

Worked in a research group with 4 other students, supervised by Dr. Andrew Christlieb. We successfully implemented finite-difference time-domain algorithms in Python to numerically solve Maxwell's Equations.

ALMA COLLEGE CS DEPT. | RESEARCH ASSISTANT

June - Aug. 2011 | Alma, MI

Assisted Dr. Andrew Thall in his research. Programmed in parallel on General Purpose Graphical Processing Units in CUDA C. Parallelized algorithms for problems such as solving a class of Diophantine equations and Mersenne Prime testing.

SELECTED PRESENTATIONS

MathFest 2012

Joint Mathematics Meeting 2014

Alma College Senior Thesis Presentation

LBNL Undergraduate Poster Session 2014

U. Michigan Engineering Graduate Symposium 2015

American Geophysical Union 2015

American Geophysical Union 2016

↑ OSPA Award Winning Presentation

Scientific Computing and Maxwell's Equations

Generalizing the Whirlpool Hash Function

Incompleteness: What We Can't Prove

Profiling Highly Parallel Genetic Assemblers

GPU Beamforming and Pulsar Science with the LWA

Multi-scale Analysis of DSCOV Data Using Wavelets

Simulating 3D Spacecraft Constellations for

Low Frequency Radio Imaging