

Emmanuel Hartman

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EDUCATION

- **University of North Carolina at Asheville** *Aug. 2014 - May. 2018* Asheville, North Carolina
Bachelor of Arts in Pure Mathematics with a Minor in Computer Science with Distinction as a University Scholar
GPA: 3.938 (Summa Cum Laude); Mathematics GPA: 4.0; Computer Science GPA: 4.0
UNC Asheville Mathematics Department Top Math Student Award Recipient
UNC Asheville Mathematics Department Scholarship Recipient
UNC Asheville Honors Program Citizenship Award Recipient
UNC Asheville Honors Program Student
UNC Asheville Laurel Scholarship Recipient
- **Florida State University** *Aug. 2018 - Present* Tallahassee, Florida
Qualified PhD Student - Mathematics
GPA: 3.78;
Legacy Fellow : Aug. 2018 - Present

RESEARCH EXPERIENCE

- **Elastic Shape Analysis Applications in Climate Science**
August 2019-Present Florida State University
 - This project implemented the Square Root Velocity (SRV) framework to analyze the shape of winter precipitation data for 18 cities across the US over the past 40 years. This analysis consisted in part of computing an approximation of the Karcher mean for each city's data set to describe the average shape of winter precipitation data for the city. Additionally, we computed a pairwise shape distance matrix for each city an year in our data set. Finally we focused our efforts on 3 cities to test the effectiveness of the shape metric in distinguishing between the precipitation patterns of different cities.
- **Order Theory Research**
Jan 2017 - May 2018 UNC Asheville
 - Two colleagues and I are investigated the order dimension of different types of partially ordered sets, also known as posets. Our group explored how certain configurations within a partial order affect the order dimension. Specifically, we sought to show that every poset whose order dimension is greater than two contains a certain sub-order. Our group demonstrated several new ways to remove elements from a poset such that the order dimension remained unchanged. Building off of this work and that of other order theorists, we developed a class of posets that had been reduced by removing elements that had no effect on the order dimension.
- **Topology and Group Theory Research**
Jan 2018 - May 2018 UNC Asheville
 - This individual research project investigates a method of generating a topological space from a group. This research is focused how properties and structures within a group determine the properties and structure of the topological space generated from that group. Furthermore, we used the topology generated by this method to prove facts about groups.

• Computer Science Research

August 2016 - May 2018

UNC Asheville

- This large scale software development project was an iteratively developed Unity implementation of a popular board game, King of Tokyo, using Object Oriented abstractions and Model-View-Controller architecture. My initial task was creating an Artificially Intelligent actor to compete against human players of the game. After the AI actor was implemented, I stayed on the project as the software architect for the final semester of development.

CONFERENCE PRESENTATIONS

- Hartman, E., 2018: Using Topology to Study Groups. *Twelfth Annual Undergraduate Math Conference* University of Tennessee at Knoxville Knoxville, TN,
- Hartman, E. and A. Van Dorsten, A. , 2016: Building an Active Honors Student Administration. *North Carolina Honors Association Fall 2016 Conference* University of North Carolina at Greensboro Greensboro, NC, P9 [Available online at: https://honorscollege.uncg.edu/NCHA/Previous-Conferences/Fall2016_NCHAProgram.pdf]
- Hartman, E. and A. Van Dorsten , 2017: Building an Active Honors Student Administration. *2017 SRHC Conference* Southern Regional Honors Council Asheville, NC,

CONFERENCES ATTENDED

- *Twelfth Annual Undergraduate Math Conference*, University of Tennessee at Knoxville, Knoxville, TN, 2018
- *2017 SRHC Conference* , Southern Regional Honors Council, Asheville, NC, 2017
- *North Carolina Honors Association Fall 2016 Conference*, University of North Carolina at Greensboro, Greensboro, NC, 2016
- *North Carolina Honors Association Fall 2015 Conference*, University of North Carolina at Asheville, Asheville, NC, 2015
- *Consortium for CS in Colleges: Southeastern Conference* , Roanoke College, Salem, VA, 2015

PROFESSIONAL EXPERIENCE

• Florida State University

August 2018- Present

Tallahassee, FL

- Precalculus Algebra Instructor of Record
- Business Calculus Teaching Assistant
- Linear Algebra Grader
- Trigonometry Teaching Assistant
- College Algebra Teaching Assistant

August 2019 - Present

June 2019 - July 2019

January 2019 - April 2019

August 2018 - December 2018

August 2018 - December 2018

• French Broad River Academy

September 2016- May 2018

Asheville, NC

- Extracurricular Computer Science Instructor
- Volunteer Teaching Assistant
- After School Tutor

January 2017 - Dec 2017

September 2016 - May 2017

January 2017 - May 2018

- **UNC Asheville Student Employee**

September 2016- May 2018

Asheville, NC

- Math Lab Assistant
- Computer Science Peer Tutor
- Freshman Peer Mentor

September 2016 - May 2018

September 2017 - May 2018

September 2017 - Dec 2017

- **Authoring Action Summer Intensive**

Summer 2015- Summer 2017

Winston Salem, NC

- Writing Mentor
- Filmmaker
- Light and Sound Designer/Board Operator

Summer 2015, 2016, and 2017

Summer 2016, and 2017

Summer 2015, 2016, and 2017

EXTRACURRICULARS, SKILLS, AND AWARDS

- President and Founding Member of the UNC Asheville Student Honors Advisory Council

April 2017-May 2018

- Founder and Organizer of the Sparks Lecture Series through the UNCA Honors Program

November 2015-August 2017

- Extensive Experience in: Java, Python, Processing, Mathematica, LaTeX, Matlab and C#

- UNC Asheville Dean or Chancellor's List

Fall 2014-Spring 2018

- Volunteer at the Southern Regional Honors Conference

Spring 2017

- Participant in the ICPC Mid-Atlantic USA Contest-2nd Place at UNC Chapel Hill

November 2016

- Attendee of the North Carolina Governor's School West in Mathematics

Summer 2013

- Volunteer Teaching Assistant at the French Broad River Academy

January 2017 - May 2017

- Participant in the Consortium for CS in Colleges: Southeastern Conference Programming Contest

November 2015

- Volunteer at the NC Honors Association Conference

Fall 2015