Frederick Hohman

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Education

2015-Present **Ph.D.** in Computational Science and Engineering
Georgia Institute of Technology, Atlanta, GA
Advisor: Professor Surya Kalidindi
Interests: Data science, visual analytics, computational mathematics, material informatics

2011-2015 **B.S.** in Mathematics, Area of Emphasis in Applied Mathematics
B.S. in Physics
University of Georgia, Athens, GA
Thesis: "3D Printing the Trefoil Knot and its Pages"
Overall GPA: 3.84/4.0, Magna Cum Laude

Research Experience

Graduate Research Assistant

2015-Present Georgia Institute of Technology, School of Computational Science and Engineering, Atlanta, GA

Project: Microstructure Informatics
• Applying data science to speed up the process of new material characterization, development, and manufacturing to meet needs of national Materials Genome Initiative.
• Research areas: Data science, material informatics, statistics

Undergraduate Thesis and Research

2013-2015 University of Georgia, Department of Mathematics, Athens, GA

Project: 3D Printing the Trefoil Knot and its Pages
• Exploring 3D printing in topology. Programmed, designed, and 3D printed 34-piece, color-coordinated, and magnetized 3D puzzle of the trefoil knot fibration illustrating an open-book decomposition. Posted smaller, derivative models online and have received 8,000+ views and 1,500+ downloads.
• Research areas: 3D modeling, topology, visualization, mathematical exposition

Features and Presentations

1. Invited to post on Wolfram Community and received over 7,000+ views, resulted in two articles written about project from 3DPrint.com
2. Presented at 2015 and 2014 UGA Center for Undergraduate Research Symposium
3. Featured in yearly 2015 UGA Mathematics Department Newsletter

4. UGA Center for Undergraduate Research website Spotlight
5. Abstract published in UGA Journal of Undergraduate Research Opportunities
6. Invited to guest post on Makerhome.com: well-known 3D printing website of Dr. Laura Taalman (James Madison University, MakerBot)
7. Images featured on Sketches of Topology: topology website of Dr. Kenneth Baker (University of Miami)

REU in Mathematics and Computational Science

2014-2015 Fairfield University, Department of Engineering, Fairfield, CT

Project: Numerical and Experimental Comparison of Oceanic Overflow
• Directly compared numerical solutions derived from the Navier-Stokes equations to designed experiments performed at the lab-scale to model specific ocean phoneme. Configured MIT General Circulation Model on a linux computer cluster to parallel compute numerical simulations while using MATLAB for pre- and post-processing data visualization.
• Research ares: Computational fluid dynamics, data visualization, applied mathematics

Features and Presentations

1. Presented at 67th American Physical Society Division of Fluid Dynamics
2. Abstract published in 67^{67} APS DFD Conference Proceedings
3. 1st place at 2015 Joint Mathematical Meeting Undergraduate Poster Session in Computational Math
4. Presented at REU Mini-Conference at Yale University, Brown University, and Los Alamos National Lab

Math Outreach and Work Experience

3D Printed Cube Decomposition Trophy

2014 University of Georgia Mathematics Department, Athens, GA
Designed, modeled, and 3D printed cube decomposition trophy for annual UGA High School Math Tournament that was given to the top scoring teams and participants.

3D Printed UGA Keychain

2014 University of Georgia Lamar Dodd School of Art, Athens, GA
Created 3D printed UGA keychain and presentation notes given at Experience UGA: a interdisciplinary event that exposes middle-school and high-school students to hands-on learning activities.

Student Notetaker

2014-2015 University of Georgia, Athens, GA
Generated notes for undergraduate mathematics and physics courses to provide for students with disabilities.

I.T. Assistant

2013 St. Joseph Catholic School, Marietta, GA
Installed and managed network of 65 iPads controlled by 5 MacBooks. Migrated school towards cloud-based interactivity allowing realtime faculty integration and management of student services.

Tutor

2012 University of Georgia, Athens, GA
Specialized in tutoring Calculus to undergraduates.

Technology Skills

OS: Mac OS X, Windows, Unix Command Line
Productivity: Microsoft Office, iWork
Programming: Mathematica, Matlab, LaTeX, Python, C
Web: HTML, CSS, Markdown, Jekyll, Git
Graphics: Pixelmator, Blender, Meshlab, MakerBot Desktop (developing: Adobe CSS Suite)

Honors and Awards

2015 President's Fellowship at Georgia Institute of Technology
2015 1st at Joint Mathematics Meeting Undergraduate Poster Session in Computational Math
2015 UGA CURO Research Graduation Distinction
2014 UGA CURO Research Assistantship
2013 Presidential Scholar
2011-2015 Dean's List
2011-2015 Georgia HOPE Scholarship
2009 Eagle Scout Award

Organizations

2014-2015 American Physical Society
2012-2015 UGA Mathematics Club
2012-2013 Society of Physics Students, UGA Chapter
2011-2015 National Society of Collegiate Scholars

Coursework

Computational Science and Engineering

CSE 6001 Introduction to Computational Science and Engineering
CSE 6010 Computational Problem Solving
CSE 8803 Material Informatics

Computer Science

CS 8001 Visualization Seminar

Mathematics

4990H Honors Thesis
4970H Undergraduate Research II
4960H Undergraduate Research I
4760 Mathematics and Music
4720 Partial Differential Equations
4510 Numerical Analysis II
4500 Numerical Analysis I
3200 Introduction to Higher Mathematics
3100H Sequences and Series
3000 Linear Algebra
2700 Elementary Differential Equations
2500 Multivariable Calculus
2260 Calculus II for Science and Engineering

Physics

4800 Introduction to Nanotechnology
4701 Quantum Mechanics I
4300 Thermodynamics
4201 Electricity and Magnetism I
4202 Classical Mechanics II
4101 Classical Mechanics I
3900 Mathematical Methods in Physics
3700 Modern Physics
3320L Electronics
1312L Advanced Introductory Physics II
1311L Advanced Introductory Physics I

Statistics

4520 Mathematical Statistics II
4510 Mathematical Statistics I

Website

Designed, developed, and maintaining fredhohman.com. Displays project expositions and blog posts by using a static site generator to serve code and content publicly on Github.

References

Dr. Surya Kalidindi: surya.kalidindi@me.gatech.edu, (404) 385-2886
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