Michael Heinz

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OBJECTIVE

Seeking an internship for Summer 2020 in Data Analytics, Software Engineering, or Quant Trading; open to relocation.

EDUCATION

The Ohio State University, B.S. Mathematics and Physics with Honors — Columbus, OH
Overall GPA (4.00 scale): 4.00; Major GPA: 4.00; Expected Graduation: May, 2020

RESEARCH EXPERIENCE

Undergraduate Research Assistant to Prof. Ovidiu Costin (Mathematical Physics) — Columbus, OH
February 2018 - May 2019, August 2019 - Present

- Conducting university funded research on advanced methods for resummation of divergent series to convergent solutions that give maximum information about the behavior of the associated function when dealing with incomplete information
- Applicable to various fields including obtaining higher precision in critical expansions at low and high temperatures in statistical mechanics
- Applying a new method of resummation developed by Dr. Costin on Painlevé Equation PII
- Presented research results at the 2018 Ohio State Autumn Undergraduate Research Festival, 2019 Ohio State Denman Undergraduate Research Forum, and the 2019 Young Mathematicians Conference at Ohio State

Wayne State JETSCAPE REU student to Prof. Chun Shen (Nuclear Physics) — Detroit, MI
May 2019 - July 2019 (https://bitbucket.org/wayne_state_nuclear_theory/sph_solver/src/master/)

- Conducted JETSCAPE funded research on the smoothed particle hydrodynamics (SPH) method to solving PDE's for hydrodynamic fluctuations in high energy nuclear collisions
- Wrote an open source code package in C++ with C++ 11 standard, as well as a report on my findings

Undergraduate Research Assistant to Prof. Sergei Chmutov (Knots and Graphs) — Columbus, OH
June 2017 - December 2017 (https://people.math.osu.edu/chmutov.1/wor-gr-su17/wor-gr.htm)

- Conducted university funded on-the-fringe research on multiple knot invariants for virtual knots
- Worked to develop a novel knot invariant that would expand on current knowledge and distinguish more virtual knots
- Helped develop a program to output different knot invariants for any inputted virtual knot

Undergraduate Research Assistant to Prof. Robert Perry (Low Energy Nuclear Theory) — Columbus, OH
June 2016 - December 2016

- Independently studied various problems in Quantum Mechanics and discussed findings with Dr. Perry
- Attended research meetings of the Low Energy Nuclear Theory group

WORK EXPERIENCE

Teaching Assistant, The Ohio State University Department of Mathematics — Columbus, OH
August 2017 - December 2017, August 2018 - Present

- Lead two bi-weekly Precalculus recitations of 30+ students each semester
- Facilitate discussion, solve problems and address students' questions about material
- Assist students outside of recitation through tutoring and office hours
- Administer quizzes and exams throughout the semester

Contractor for Colburn Hill Group — Columbus, OH
November 2018 - May 2019

- Created AI using UiPath to scrape relevant information from health care sites and post them to databases

Mathematics Tutor, Math and Stats Learning Center at The Ohio State University — Columbus, OH
January 2018 - May 2018

- Explained Calculus and other mathematics concepts in simplified language to increase understanding
- Helped students of various ages and levels connect concepts to continuously expand knowledge
- Identified individual learning levels of different students and broke down complex problems accordingly

SKILLS AND RELEVANT COURSEWORK

Skills: Familiarity with C++, Python, UiPath, Maple, Mathematica, Microsoft Excel
Relevant Coursework:

- Introduction to C++ (CSE 1222)
- Intro to Mathematical Statistics II (Stats 4202)
- Computational Physics (Phys 6810)
- Physics Data Analysis Lab (Phys 3700)
- Honors Probability (Math 5530H)
- Honors Linear Algebra and Diff. Equations (Math 5520H)

HONORS AND AWARDS

- Merit scholarship for high scholastic achievement, Department of Mathematics, Goldstein Math Scholarship (Au 2019)

- 2019 Smith Junior Award winner, Department of Physics, Jack Smith Scholarship Fund
- Merit scholarship for high scholastic achievement, Department of Mathematics, Gordon Memorial Fund (Sp 2019)
- Merit scholarship for high scholastic achievement, Department of Mathematics, Gordon Memorial Fund (Au 2018)
- 2018 Smith Sophomore Award winner, Department of Physics, Alva W. Smith Scholarship Fund
- Honorable Mention, 2018 Rasor-Bareis-Gordon Math Competition
- Merit scholarship for high scholastic achievement, Department of Mathematics, George Majda Scholarship Fund (Sp 2018)
- Score of 20, 2017 William Lowell Putnam Mathematical Competition
- 2017 Helen Cowan Book Award winner, Department of Physics
- Merit scholarship for high scholastic achievement, Department of Mathematics, George Majda Scholarship Fund (Au 2017)
- 2^{nd} place, 2017 Rasor-Bareis-Gordon Math Competition. Awarded Goldstein Mathematics Scholarship
- Score of 18, 2016 William Lowell Putnam Mathematical Competition
- Merit Scholarship for high scholastic achievement, Department of Mathematics, Morris Endowment Fund (Au 2016)
- Maximus Scholarship, The Ohio State University (Au 2016 - Sp 2020)
- Valedictorian, Hilliard Davidson High School, Class of 2016