Tim Tharp

Education

Boston University Boston, MA
PhD Candidate in Computer Science September 2019 – Present

Northeastern University Boston, MA
Bachelor of Science in Mathematics December 2018
Minor in Computer Science

Teaching Experience

Boston University Computer Science Department Boston, MA
Teaching Fellow January 2020 – Present

- Assisted in teaching a range of CS courses, including Programming in Python & Java, Algorithms and Data Structures, Complexity Theory, Probability in Computing, and Discrete Mathematics
- Led discussion sections of 30 students, combining interactive lectures with guided problem-solving
- Designed coursework, including assignments and exams, with an emphasis on appropriately challenging students to encourage deep understanding and mastery of the material
- Supported students one-on-one and in small groups during office hours, using the Socratic method to assess student understanding and improve problem-solving skills and educational outcomes
- Mentored undergraduate teaching assistants, coaching on teaching and student engagement techniques

Honors:

- Computer Science Department Teaching Fellow Excellence Award 2024
- Graduate School of Arts and Sciences Teaching Fellow Excellence Award 2022, 2023

Northeastern University Mathematics Department Boston, MA
Grader September 2017 – December 2018

- Provided feedback on homework, quizzes, and exams in Introduction to Mathematical Reasoning
- Critiqued students' proof style, thoroughness, and correctness in discrete topics including set theory, combinatorics, functions, and number theory
- Identified and communicated trends in students' strengths and weaknesses to Professors

Northeastern University Mathematics Tutoring Center Boston, MA
Tutor January 2016 – May 2016

- Communicated difficult topics to students in a simplified and understandable way
- Adjusted tutoring style to match students' learning styles and to reinforce coursework effectively

Work Experience

John Hancock Insurance Boston, MA
Analyst January 2019 – August 2019

- Provided ongoing data analysis to help guide the success of a large multi-month marketing campaign
- Built Tableau data visualizations about the campaign to answer questions from executives

John Hancock Insurance Boston, MA
Long-Term Care Actuarial Co-op July 2017 – December 2017

- Designed Excel templates and VBA macros which process tens of thousands of rows of policy data to calculate new premium totals and output intermediary worksheets for other teams
- Strengthened existing documentation and drafted new directions for programs, worksheets, and macros

Northeastern University LGBTQA Resource Center Boston, MA
Staff Assistant January 2016 – December 2018

- Built and maintained Excel spreadsheets to track visitor information
- Promoted the center and events in person and via mailing letter
- Provided logistical support to local student group events

Research Experience

Boston University Computer Science Department Boston, MA
Research Fellow May 2020 – Present

- Collaborated with a small research team to investigate structural properties of Boolean circuits, with key connections to a major open question in complexity theory
- Validated proofs using Lean, a functional programming language and theorem prover, with the aim of developing automated tools to support research in Boolean circuit complexity

Clemson University Mathematics Department Clemson, SC
Undergraduate Researcher in Coding Theory May 2018 – July 2018

- Investigated a unique problem without previous literature on the subject
- Developed Python scripts to identify counterexamples to mathematical claims
- Presented results to professors and faculty at an undergraduate mathematics research conference

Publications

- Baumbaugh et al. *"Batch Codes from Affine Cartesian Codes and Quotient Spaces."* In Cryptography and Coding: 18th IMA International Conference (IMACC 2021), Springer, 2021
- Tim Jackman and Steve Homer. *"Review of Kernelization: Theory of Parameterized Preprocessing by Fedor V. Fomin, Daniel Lokshtanov, Saket Saurabh, and Meirav Zehavi."* SIGACT News, 2020

Additional Experience

FIRST Robotics Competition Westboro, MA
Team Member (Team 4048) 2013 – 2015

- Drafted CAD diagrams using SolidWorks to facilitate fabrication of custom robot components
- Designed, prototyped, manufactured, and assembled mechanical and electrical systems
- Led as Safety Captain, training team members and maintaining a secure and organized workspace

Skills

Proficient in Python, Java, Racket, VBA, Microsoft Office Suite, Tableau, SQL
Familiar with HTML, CSS, JavaScript, Git, Scratch, MATLAB, Mathematica, SolidWorks, Lean