CONNOR COLOMBE

Email: Ccolombe@UTexas.edu, Website: https://ccolombe12.github.io

EDUCATION

The University of Texas at Austin, Texas *August 2020 - Present*
Doctor of Philosophy, Operations Research GPA 3.92
The University of Texas at Dallas, Texas *August 2018 - July 2020*
Master of Science, Computer Science with a concentration in Data Science GPA 4.0
Harvey Mudd College, California *August 2014 - May 2018*
Bachelor of Science, Joint Physics and Mathematics GPA 3.3

RELEVANT COURSEWORK

Math/OR: Multivariate Calculus, Discrete Mathematics, Probability and Statistics, Linear Algebra I, II, & III, Differential Equations I, II, & III, Numerical Analysis, Abstract Algebra, Real Analysis, Linear Programming, Integer Programming, Non-Linear Proghramming, Decision Analysis, Applied Stochastic Processes, Opitmization Under Uncertainty, Systems Modeling, Markov Decision processes

CS: Principles of Computer Science, Data-Structures, Algorithms, Financial Markets and Modeling, Machine Learning, Algorithmic Game Theory, Database Design, Big Data Management and Design, Computational Geometry, Operating Systems Concepts, Randomized Algorithms, Combinatorics and Graph Theory

COMPUTER SKILLS

Programming Procient in Python; Experience using Java, HTML Prolog, SQL
Software & Tools Proficient in Mathematica, Matlab, Pyomo, LaTex, MS Office

HONORS AND AWARDS

UT Austin Cockrell School of Engineering Graduate Fellowship: Fall 2020
Harvey Mudd College Dean's List: Fall 2016, Spring 2017, Fall 2017, Spring 2018
National AP Scholar

PUBLICATIONS

Approximating The (Continuous) Fréchet Distance Connor Colombe and Kyle Fox. SOCG 2021.

Optimal Resource Placement for Electric Grid Resilience via Network Topology Balasubramanian Sambasivam, Connor Colombe, John Hasenbein, Benjamin Leibowicz. In Review for Risk Analysis 2022.

The Effects of Policy Uncertainty and Risk Aversion on Carbon Capture, Utilization, and Storage Investments Connor Colombe and Benjamin Leibowicz. Submitted to Energy Policy 2023.

RESEARCH EXPERIENCE AND PROJECTS

Graduate Research Assistant *Fall 2021-Present*
Operations Research department, University of Texas at Austin

· Working with professor Benjamin Leibowicz to develop novel CCUS models and use them to gain insight to barriers to CCUS infastrcuture developement.

Theoretical Computational Geometry Research *Fall 2019-Summer 2020*
CS department, University of Texas at Dallas

· Worked with professor Kyle Fox to develop and prove a fast new algorithm for approximating the Fréchet distance between two polygonal chain curves. The result was used for my thesis paper and defense presentation.

Brain Patch Project *Fall 2016-Spring 2018*
Physics + Engineering department, Harvey Mudd College

· Collaborated with two departments to develop a novel treatment of traumatic brain injuries using chitosan nanoparticles.
· Led a three student lab group in which I trained new members and set project objectives.
· Experimentally confirmed that chitosan nanoparticles exhibited antibacterial properties which validated their inclusion in the project.
· Researched the minimum concentration of nanoparticles necessary to achieve antibacterial threshold and developed methodology for effectively measuring nanoparticle size.
· Used results for a thesis and presentation.

WORK EXPERIENCE

NASA Jet Propulsion Laboratory Internship *Summer 2016 & Summer 2017*
NASA JPL, Pasadena, California

· Investigated and characterized the performance of software designed to identify earthquake parameters based on spatial shifts in a network of GPS sensors. The software's performance had not been extensively validated.
· Created numerous artificial fault models and synthetic GPS data for a variety of different conditions (noisy data, different sized data set, different spacing between data points, etc.).
· Characterized the situations when the software would successfully parameterize the responsible fault and gave insight into how to improve the software.

Individual Tutor *Fall 2017-Spring 2018*
Harvey Mudd College

· Assigned by the college to be a private tutor for students struggling in physics and math courses.
· Worked one-on-one with students, having them communicate their thought process during active problem-solving in order to target specific gaps in understanding.
· Built student intuition by systematically and naturally building up from mutually understood first principles.
· Students self-reported improvements in relevant coursework.

SERVICE

UT Austin Informs Student Chapter President *Fall 2021 - Present*

UT ORIE Problem Seminar and Interview Prep *Spring 2023 - Present*