CONNOR COLOMBE

Austin, Texas

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EDUCATION

The University of Texas at Austin, Texas   *August 2020 - Present*
Doctor of Philosophy, Operations Research   GPA 4.0
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

RELEVANT COURSEWORK

Math/OR: Multivariate Calculus, Discrete Mathematics, Intermediate Probability and Statistics, Linear Algebra I, II, & III, Differential Equations I, II, & III, Fourier Analysis and Partial Differential Equations, Numerical Analysis, Abstract Algebra, Real Analysis, Linear Programming, Integer Programming, Decision Analysis I, Applied Stochastic Processes

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

COMPUTER SKILLS

Programming   Procient in Python; Experience using Java, Prolog, SQL
Software & Tools   Proficient in Mathematica, GAMS, Pyomo, LaTex; knowledagble in 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

RESEARCH EXPERIENCE AND PROJECTS

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.
· The paper, *Approximating The (Continuous) Fréchet Distance*, joint with Kyle Fox is currently in submission.

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.

Drivable Couch Project *Fall 2018-Spring 2018*
Harvey Mudd College

- Organized a three student group and received funding from the college to design and build a motorized RC couch.
- Performed extensive research and consulted engineering professionals to develop the most practical design within our budget and time constraints.
- Quickly learned the relevant machine shop and electronics skills to implement our final design.
- Work culminated in a presentation and live demonstration at the college. Check out the couch at: https://www.youtube.com/watch?v=DDZJ17eP7AM

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.