GARY GUZZO

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EDUCATION

Master of Science, Applied Mathematics   *May 2022*
Towson University, MD   3.75/4.0 GPA

Bachelor of Science, Mathematics   *May 2019*
Towson University, MD   3.35/4.0 Major GPA

WORK EXPERIENCE

Adjunct Mathematics Faculty, Towson University   *August 2022 – May 2023*
University instructor for calculus I, statistics, and algebra. Prepare lectures, grade, and hold office hours.

Graduate Teaching Assistant, Towson University   *January 2021 – May 2022*
Held tutoring hours for real analysis, abstract algebra, and operations research. Graded assignments for calculus.

Simulation Test Engineer, CACI Inc.   *June 2020 – December 2020*
Analyzed radar systems and formulated their behaviors into data used for emitter testing.

Mathematics Tutor, Harford Tutoring Center   *September 2016 – May 2020*
Instructed students in courses ranging from algebra to differential equations, physics, and programming.

ACADEMIC PROJECTS

Data Assimilation for Chaotic and Stable Dynamical Systems   *Fall 2021 – Spring 2022*
Numerically solved the Lorenz system and the 2D heat equation and computed modified systems dependent on the originals. Built physics-informed and deep operator networks to learn the Lorenz and heat behaviors from the modified systems. Analytically proved convergence with notions from functional analysis and topology. Implemented in Python.

Two-Dimensional Naiver-Stokes Equations   *Spring 2021*
Researched fluid dynamics and analytically solved the incompressible two-dimensional Navier-Stokes equations for pipe flow. Used finite-difference methods for obstacle and moving boundary problems. Implemented in Python and C.

Recurrent and Convolutional Neural Networks   *Fall 2020*
Built a nonlinear recurrent neural network which answered questions concerning text data. Built a convolution neural network which identified hand gestures from image data. Both networks achieved over 99% accuracy. Implemented in Python.

Function-Writing for Topics in Data Science   *Fall 2019*
Researched discrete convolution, radial basis function interpolation, and principal component analysis. Wrote Python functions to perform each process using only NumPy. Verified the processes via SciPy and SciKit Learn packages.

Topology Graduate Research Problem   *Spring 2019*
Researched the convergence of sequences in a topological space of functions to prove point-wise convergence. Used the results to prove continuity of the evaluation map. Presented the proof orally to the topology professor.

COMAP International Mathematical Contest in Modeling   *Winter 2019*
Assembled and led a team that modeled the growth, development, and impacts of a hypothetical dragon population using analytical and empirical approaches. Earned an Honorable Mention, placing in the top 22% among over 14,000 teams.

Differential Geometry Surface Project   *Fall 2018*
Developed interactive *Mathematica* code which computed the tangent plane at any point on a surface, allowing the user to drag the dynamically-updating tangent plane across the surface.

Delivery Route Optimization   *Spring 2018*
Derived and solved linear program which optimized delivery routes, minimizing the distance traveled between any number of nodes under physical and capacity constraints. Implemented in Python, Java, and *Mathematica*.