BRANDON FOX

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OBJECTIVE

Dedicated mathematics student with a high learning capacity, aspiring to become a recognized mathematical researcher and undergraduate-focused professor at a reputable university. Research interests: differential equations, eigenvalues and eigenvectors, classical diffusion PDE, anisotropic (Perona-Malik) diffusion, Perona-Malik paradox. Planning to conduct further research in fields such as spectral theory, harmonic analysis, differential geometry, image processing, and machine learning (ML).

EDUCATION

STATE UNIVERSITY OF NEW YORK AT ALBANY — Albany, NY
Master of Arts in Mathematics — *2026*

- **Overall GPA: 3.93** – *Summa Cum Laude*
- Research/Thesis: The Diffusion Coefficient as a Matrix
- Mathematics and statistics coursework: Partial Differential Equations (PDEs), Mathematical Physics, Algebraic Topology, General Topology, Real Analysis, Linear Algebra, Applied Linear Algebra for Data Science, Optimization Methods (with Machine Learning aspects), Machine Learning, Probability Theory, Nonparametric Statistics
- Activities and societies: Chabad

STATE UNIVERSITY OF NEW YORK AT NEW PALTZ — New Paltz, NY
Bachelor of Science in Mathematics — *2022*

- **Overall GPA: 3.9** – *Summa Cum Laude* – Dean's List
- Research: Image Processing with MATLAB and PDEs
- Mathematics coursework: Differential Equations (ODEs and PDEs), Mathematical Modeling (Dynamical Systems), Single and Multi-variable Calculus, Real Analysis, Group Theory, Linear Algebra, Classical Algebra, Number Theory, Mathematical Logic, Axiomatic Geometry, Probability and Statistics
- Computer Science coursework: Intro to Java Programming, Data Structures and Algorithms, Object-Oriented Programming (OOP), Web Page Design
- Activities and societies: Chabad, Choral Ensembles Concert, Anime Club, Integration Bee

PROJECTS | Available on personal website: https://gitfox123.github.io/my-website-brandon-fox/

PROJECTS IN IMAGE CLASSIFICATION WITH CONVOLUTIONAL NEURAL NETWORKS (CNNs) — *2023*
Brandon Fox

- Created Convolutional Neural Network (CNN) models and had them trained to autonomously classify images on training, validation, and testing MNIST data subsets
- Completed projects under "Machine Learning with ChatGPT: Image Classification Model" from Coursera
- Tools and technologies used: Python, TensorFlow, Keras, NumPy, Matplotlib, scikit-learn, Seaborn, GitHub

IMAGE PROCESSING WITH MATLAB AND PARTIAL DIFFERENTIAL EQUATIONS (PDEs) — *2021*
Brandon Fox, Dr. Jeungeun Park

- De-noised corrupt images using MATLAB programming and PDEs with mathematics professor

EXPERIENCE

TUTOR.COM — New City, NY
Online Tutor — *2022 – 2023*

- Tutored students in algebra, geometry, trigonometry, pre-calculus, and single and multi-variable calculus, in a fast-paced setting
- Helped each student understand and solve problems, step-by-step, through skillful questioning, visuals, and examples

VARSITY TUTORS, LLC — New City, NY
Online Tutor — *2022*

- Guided US and international students in algebra, geometry, trigonometry, pre-calculus, and single-variable calculus
- Created weekly, 1-on-1 session schedules for each student, based on factors such as, individual schedules and overall objectives

STATE UNIVERSITY OF NEW YORK AT NEW PALTZ New Paltz, NY
Tutor *2021*

- Tutored university students in mathematics courses including College Algebra, Pre-Calculus, and Introduction to Proof

TOOLS & TECHNOLOGIES

- Languages: LaTeX (Overleaf), Python (Jupyter Notebook, VS Code), MATLAB (R2024b), Java (Notepad++), R (RStudio), HTML5/CSS3/JavaScript (VS Code)
- Version control: GitHub

ADDITIONAL INFORMATION

- Leadership and volunteer: Welcoming Committee (2021), Campus Recruitment Event Worker (2019), Lending Hand (2019)
- Other skills and interests include: traveling, archery, puzzles (e.g., Connections from NY Times, sudoku), culinary arts, storytelling/story writing, sketching, logo design, piano