Nicholas John

Graduate Student: M.S. Applied and Computational Mathematics

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Education

Rochester Institute of Technology, Rochester, NY, USA

M.S. Applied and Computational Mathematics	Anticipated May 2022
3.91 GPA	
B.S. Applied Mathematics, *summa cum laude*	Completed Dec. 2020
Minor in Japanese Language	

Experience

Graduate Researcher   Fall 2020-Present

Exploring methods to reproduce governing models from time series data. Constructing machine learning codes using Python and TensorFlow. Applying methods to models of infectious disease spread.

Criminal Justice Data Science Explorer   March 2022-Present

RIT College of Liberal Arts

Investigating biometric time series with recurrence quantification analysis and machine learning classifiers, in order to identify when a human subject is experiencing stress.

Teaching Assistant   January 2022-Present

RIT School of Mathematical Sciences

Tutoring students during problem solving sessions, holding weekly office hours, and grading quizzes for a course on integral calculus.

Undergraduate Research Fellow   Summer 2020

Emerson Summer Undergraduate Research Fellowship, RIT College of Science

Modeled spread of invasive plant species using network analysis.

Conservation and Invasive Species Management Steward   Summer 2019

New York State Parks

Collected data for research and management projects taking place in the New York State Parks, totaling 148 hours of public volunteer service.

Technical Skills

Python
Data analysis and scientific computing with Numpy, Scipy, Scikit-learn, Matplotlib, Pandas

TensorFlow
Implemented *multistep neural networks* [https://arxiv.org/abs/1801.01236], a method of learning dynamical systems from time series data. Ported author's original code to version 2 of TensorFlow.

C++
Created a data-processing pipeline to sort geographic (lat/long) data points into hexagonal grid cells.
Created a simulation of disease spread on social networks, reproducing the model introduced in [Phys. Rev. Lett. 96, 208701].

Applied Mathematics
Specialties Include: Numerical Analysis, Statistics, Machine Learning, Time Series Analysis, Dynamical Systems, Differential Equations, Complex Networks, Graph Theory

Honors and Awards

RIT School of Mathematical Sciences Graduating Research Scholar Award	2021
RIT Presidential Scholarship Recipient	2017-2020
RIT College of Science Dean's List Recognition	2017-2020
All-Academic Honors	2019, 2021
United States Track and Field and C.C. Coaches Association	
National Championship Participant	2022
NCAA Division III Indoor Track and Field	