Nicholas John

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Education

Rochester Institute of Technology

M.S. Applied and Computational Mathematics   comp. Summer 2022
                                                                                                                GPA 3.92

B.S. Applied Mathematics, *summa cum laude*   comp. Dec. 2020
Minor in Japanese Language   GPA 3.84

Work Experience

Technical Solutions Engineer   September 2022-September 2024
Epic Systems Corporation
Diagnosed issues with electronic health record software and worked with customer stakeholders to deliver fixes and implement workarounds. - Advised healthcare organizations on monitoring symptoms and educating patients on their conditions through their MyChart portals. - Debugged JavaScript, C#, and M. - Created reports on internal operations using SQL and MS Report Builder. - Created background routines to check whether customer systems were affected by issues we discovered. - Coached new hires on customer-facing work.

Graduate Student Researcher   Fall 2020-August 2022
Developed methods to reproduce governing models from time series data. Constructed machine learning codes using Python and TensorFlow. Applied methods to models of infectious disease spread. https://doi.org/10.1016/j.jocs.2023.101968

Criminal Justice Data Science Explorer   Spring 2022
RIT College of Liberal Arts
Investigated biometric time series with machine learning classifiers to identify the experience of stress.

Teaching Assistant   Spring 2022
RIT School of Mathematical Sciences
Tutored students during problem solving sessions and weekly office hours for a course on integral calculus.

Undergraduate Research Fellow   Summer 2020
Emerson Summer Undergraduate Research Fellowship
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.

Grader   2018-2019
RIT School of Mathematical Sciences
Graded weekly assignments for courses on discrete mathematics, differential equations, and complex variables.

Awards and Honors

NCAA All-Academic Honors 2019, 2022
United States Track and Field and Cross Country Coaches Association

Undergraduate Research Scholar 2021
RIT College of Science

Outstanding Grader Award 2019
RIT School of Mathematical Sciences

Dean's List Recognition 2017-2020
RIT College of Science

Presidential Scholarship 2017-2020
Rochester Institute of Technology

Peer-Reviewed Article

Nicholas John, Nishant Malik, *Automated discovery of analytical models for epidemic dynamics on coevolving networks*, Journal of Computational Science, Volume 67, 2023, 101968, ISSN 1877-7503, https://doi.org/10.1016/j.jocs.2023.101968.

In Preparation

Nicholas John, Nishant Malik, *Laplacian spectrum of the recurrence matrix.*

Graduate Thesis

John, Nicholas, "Data-Driven Equations for Coevolving Network Systems" (2022). Thesis. Rochester Institute of Technology. Accessed from https://scholarworks.rit.edu/theses/11252

Presentations

Poster Presentation - *Data-Driven Pair Approximations for Coevolving Network Dynamics*
2022 Northeast Regional Conference on Complex Systems

Invited Talk - *Data-Driven Pair Approximations for Coevolving Network Dynamics*
2022 Graduate Education Week and Showcase
Rochester Institute of Technology

Video Presentation - *Modeling the Spread of Invasive Species with Complex Networks*
2020 Undergraduate Research Symposium
Rochester Institute of Technology

Other Academic Activity

Participant - *Online Summer School 2021 on Trends, Rhythms and Events in the Earth's Climate System – Past, Present and Future*
University of Potsdam, Germany

Technical Skills

Python / TensorFlow
Implemented a library to express differential equations as artificial neural networks, using time series as training data. nicholas-john.github.io

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].

Network / Database
I wrote routines in **M** and **SQL** to diagnose database issues, and I interpreted stack traces for errors on web servers running **.Net/C#** during my work at Epic.

Volunteering

Assistant Track and Field Coach   Spring 2023, Spring 2024
Madison West High School
10 hours per week