Aravinth Krishnan Ravi

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Education

Kansas State University — Manhattan, KS
PhD in Mathematics — June 2027
Research Interests: Deep learning methods to solve inverse problems
Advisor: Dinh-Liem Nguyen

Nanyang Technology University — Singapore
Bachelor of Science (Honours with Distinction) in Mathematical Sciences (Pure Mathematics) — June 2022
Thesis title: *A conjecture for the eigenvalues of pseudo-Anosov mappings of surfaces*
Advisor: Andrew James Kricker

Awards

Codeforces - Rank: Pupil — Spring 2025
Kansas State University AI Symposium: Humans and Machines, Best Poster - 3*rd* Place — Fall 2025
Dr. William L. Stamey Mathematics Scholarship — Fall 2025
Nanyang Technological University President Research Scholar — AY 2021/22
Nanyang Technological University President Research Scholar — AY 2020/21

Publications

In Preparation

- **Aravinth K. Ravi**, N. Nguyen, D.L. Nguyen - Fourier Model-Based Neural Networks for the Inverse Source Problem, 2025
- A. Ghanaatian, **Aravinth K. Ravi**, D. Caragea, N. Albin, and D. Rolles - Neural Network Based Molecular Structure Retrieval from Coulomb Explosion Imaging Data, 2025

Research Experience

Kansas State University — Manhattan, KS
Graduate Research Assistant — Jan 2025 – Current
- Applied graph neural networks and autoencoders networks to recover atomic positions from its final trajectories using experimental data

Nanyang Technological University — Singapore
Student Researcher — May 2022 – July 2022
- Implemented a high-performance OOP Python algorithm for large-scale eigenvalue computations to test a conjecture in low-dimensional topology

Institute for Infocomm Research, (A*STAR) — Remote
Machine Learning Intern — July 2021 – Dec 2021
- Designed and deployed predictive regression models to forecast asset lifetimes to reduce maintenance downtime and decrease costs

Invited Talks

10th Annual Meeting, SIAM Central States Section, University of Arkansas — Fall 2025
Fourier Model-Based Neural Network for the 3D Inverse Source Problem

9th Annual Meeting, SIAM Central States Section, University of Missouri-Kansas City — Fall 2024
A model-informed neural network for solving the 2D inverse scattering problem

Contributed Talks

International Mathematics and Statistics Student Research Symposium (Virtual) — Spring 2025
A Model-Informed Deep Learning Algorithm for Solving Inverse Problems
American Mathematical Society (AMS) Central Sectional Meeting, University of Kansas — Spring 2025
A Model-Informed Deep Learning Algorithm for Solving Inverse Problems

Poster Presentation

Research and the State, Kansas State University — Fall 2025
K-State AI Symposium, Kansas State University — Fall 2025

Undergraduate mentoring

Directed Reading Program - Connor Green — Fall 2025
Topic: *Introduction to Trajectory Optimization*

Summer School

Applied Harmonic Analysis and Machine Learning Summer School, Universit‘a di Genova, Italy — Fall 2024
OIST-Oxford-SLMath School on Analysis of Partial Differential Equations, — Summer 2024
Okinawa Institute of Science and Technology, Japan
Statistical Learning Theory Course, Universit‘a di Genova, Italy — Summer 2024

Teaching

Spring Mathematical Modelling Seminar — Fall 2022
Applied Matrix Theory — Fall 2022
Calculus I — Fall 2025

Skills

Technical: Matlab, Python (Tensorflow, PyTorch NumPy, scikit-learn, Pandas, SciPy)
Language: English (Fluent)