

INDRANIL GHOSH

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EDUCATION

Ph.D., Applied Mathematics Massey University	2021-Present Palmerston North, 4442
M.Sc., Physics Jadavpur University	2018-2020 Kolkata-700032
B.Sc., Physics Jadavpur University	2015-2018 Kolkata-700032

JOURNALS

Indranil Ghosh, and David J. W. Simpson, **Renormalisation of the two-dimensional border-collision normal form**. To appear in *Int. J. Bifurcation Chaos* 32(12) <https://arxiv.org/abs/2109.09242>

Sishu Shankar Muni, Hammed Olawale Fatoyinbo, and **Indranil Ghosh**, **Dynamical effects of electromagnetic flux on Chialvo neuron map: nodal and network behaviors**. *Int. J. Bifurcation Chaos* 32(09):2230020, 2022. <https://www.worldscientific.com/doi/10.1142/S0218127422300208>

Indranil Ghosh, and David J. W. Simpson, **Robust Devaney chaos in the two-dimensional border-collision normal form**. *Chaos* 32, 043120 (2022). <https://aip.scitation.org/doi/10.1063/5.0079807>

Indranil Ghosh, **Quantum Game Theory: A comprehensive study**. {Part I <https://link.springer.com/article/10.1007/s12045-021-1168-2>} {Part II <https://link.springer.com/article/10.1007/s12045-021-1180-6>} {Part III <https://link.springer.com/article/10.1007/s12045-021-1193-1>} *Resonance* (2021).

CONFERENCE PROCEEDINGS

Hammed Olawale Fatoyinbo, Sishu Shankar Muni, **Indranil Ghosh**, Ibrahim Olatunji Sarumi, and Afeez Abidemi, **Numerical bifurcation analysis of improved denatured Morris-Lecar neuron model**. *2022 International Conference on Decision Aid Sciences and Applications (DASA)*. <https://ieeexplore.ieee.org/document/9765094>

Sarath Babu, **Indranil Ghosh**, and B. S. Manoj, **Effort: A New Metric for Roadside Unit Placement in 5G Enabled Vehicular Networks**. *5GWF'2020 Proceedings*. <https://ieeexplore.ieee.org/document/9221228>

PREPRINTS

Costas J. Efthimiou, Gregory DeCamillis, and **Indranil Ghosh**, **A physics-driven study of dominance space in soccer**. <https://arxiv.org/abs/2202.00414>

SOFTWARES

Indranil Ghosh, **QGameTheory: Quantum Game Theory Simulator (v0.1.2)**. *CRAN Repository*, 2020. <https://cran.r-project.org/web/packages/QGameTheory/index.html>

BLOGS

Indranil Ghosh, Introduction to Mathematical Optimiztion (with Python). <https://indrag49.github.io/Numerical-Optimization/>

Indranil Ghosh, Introductory Football Data Analysis. <https://realsoccerexpand.netlify.app/>

RESEARCH AND WORK EXPERIENCE

Sirpi Products and Services Pvt. Ltd., Bangalore, India August 2020-December 2020.
Research Lead and SHEAR Project Lead (Remote)

Indian Institute of Space Science and Technology, Kerala, India. May 2019-June 2019.
Computer Science Intern

CONFERENCE PRESENTATIONS

Unconstrained Numerical Optimization using Python August 2022
Kiwi Pycon XI, 2022 *Tutorial*

Dynamical Effects of Electromagnetic Flux on Chialvo Neuron Map: Nodal and Network Behaviors July 2022
SIAM Conference on the Life Sciences, 2022 *Talk*

Renormalisation of the Two-Dimensional Border-Collision Normal Form July 2022
SIAM Annual Meeting, 2022 *Talk*

Renormalisation of the Two-Dimensional Border-Collision Normal Form July 2022
NSW ANZIAM 2022 Mid-Year Conference, 2022 *Talk*

Dynamical effects of electromagnetic flux on Chialvo neuron map: nodal and network behaviors April 2022
BAMC, 2022 *Talk*

Renormalisation of the Two-Dimensional Border-Collision Normal Form February 2022
ANZIAM Annual Conference, 2022 *Talk*

Learn Football Data Analysis with Python December 2021
PyCode Conference, 2021 *Talk*

Football (soccer) data analysis: A Pedagogic introduction October 2021
PyCon Taiwan, 2021 *Talk*

An introduction to hands-on football data analysis in Python October 2021
PyCon Espana, 2021 *Talk*

Football (soccer) data analysis: A pedagogic introduction September 2021
PyConline AU, 2021 *Talk*

Introduction to Soccer Pass Network Analysis with Python July 2021
PyOhio, 2021 *Thunder Talk*

Introducing a blog: Introductory Football Data Analysis July 2021
EuroPython Conference, 2021 *Lightning Talk*

Using Python to start learning Unconstrained Numerical Optimization Algorithms June 2021
Pycon Colombia, 2021 *Talk*

QGameTheory: An R package for teaching quantum computing and quantum game theory to students April 2021
International Series of Online Research Software Events (SORSE) *Poster Presentation + Talk*

QGameTheory: A Quantum Game Theory Simulator written in R for teaching quantum computing and game theory to starting programmers and undergraduate students March 2021
APS March Meeting 2021 *Poster Presentation*

Develop and Document Your First R Package December 2020
Sirpi Products and Services Pvt. Ltd. *Talk*

Learn Lambda Calculus with Python December 2020
Pycode Conference 2020 *Talk*

Teaching quantum computing and game theory with QGameTheory package September 2020
Why R? 2020 Conference *Talk*

Introducing Lambda Calculus with Python September 2020
Pycon Australia *Talk*

Quantum Game Theory with Julia: A computational analysis July 2020
JuliaCon *Poster presentation*

Build Your Own Quantum Simulator With R June 2020
The European R Users Meeting *Lightning talk*

A Computational Study of Sequential Deposition: A Dynamic Monte Carlo Process in Statistical Physics September 2019
Flatlands and beyond (2019) – A meet on 2D materials *SNBNCBS, Kolkata, India*

A Python implementation of Quantum Evolutionarily Stable Strategy Game, an interdisciplinary study of Quantum Computation and Game Theory in population biology February 2019
SLAS Conference *Washington D. C, USA*

Analysis of Quantum Game Theoretic Models with a Python Simulator December 2018
SciPy India *IIT-B, Mumbai*

Analysis of Chaos Game Simulator in Pygame October 2018
International Conference on Complex Dynamical Networks, 2018 *ISI, Kolkata*

Computation of Analytic Structure Factor for Macromolecules June 2018
Research Topic of Statistical Physics to young Physicists, 2018 *SNBNCBS, Kolkata, India*

Marking assistant for 160.101 (Calculus).
Marking assistant for 160.102 (Linear Algebra).

SKILLS

Softwares	Expert: R, Python, Fortran, git, L ^A T _E X, HTML, Markdown
Social	Twitter: @indraghosh314, Github: https://github.com/indrag49 ,