INDRANIL GHOSH

School of Mathematical and Computational Sciences • Massey University • Palmerston North, 4442

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EDUCATION

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

JOURNALS

[**J1**] *Indranil Ghosh*, and David J. W. Simpson, **Renormalisation of the two-dimensional border-collision normal form.** *Int. J. Bifurcation Chaos 32(12):2250181, 2022* . `https://www.worldscientific.com/doi/10.1142/S0218127422501814`

[**J2**] 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`

[**J3**] *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`

[**J4**] *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

[**C1**] 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`

[**C2**] 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

[**P1**] *Indranil Ghosh*, Sishu Shankar Muni, and Hammed Olawale Fatoyinbo, **On the analysis of a time varying noise-modulated heterogeneous coupled network of Chialvo neurons under the influence of electromagnetic flux** `https://arxiv.org/abs/2206.04234`

[**P2**] Costas J. Efthimiou, Gregory DeCamillis, and *Indranil Ghosh*, **A physics-driven study of dominance space in soccer.** `https://arxiv.org/abs/2202.00414`

SOFTWARES

[S1] *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

The Bifurcation Structure Within Robust Chaos of Piecewise-Linear Maps   May 2023
SIAM Conference on Applications of Dynamical Systems (DS23)   *Poster (Upcoming)*

Introduction to mathematical optimization using Python   February 2023
Python Delhi User Group Meetup, 2023   *Tutorial (Upcoming)*

Bifurcation structure of robust chaos in two-dimensional piecewise-linear maps   December 2022
New Zealand Mathematical Society Colloquium, 2022   *Talk*

Bifurcation structure of robust chaos in 2D piecewise-linear maps   November 2022
Dynamical Systems in NZ - Castaways, 2022   *Talk (E-poster)*

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*

TUTORING/MARKING

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

SKILLS

Softwares   Expert: R, Python, Fortran, git, LaTeX, HTML, Markdown
Social   Twitter: **@indraghosh314**,
                 Github: `https://github.com/indrag49`,