Hardik Rajpal

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Center for Complexity Sciences,
Imperial College London,
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United Kingdom

Research Interests	**Information dynamics in Complex Systems:** Network Science, Computational Neuroscience, Information Theory, Stochastic processes	
Education	**Imperial College London, London, UK** PhD | Center for Complexity Science | Applied Mathematics	October 2017 - present
	Thesis: *"Information theoretic perspectives on emergence in complex systems"* Advisors: Prof. Henrik Jeldtoft Jensen Dr. Fernando Rosas	
	Indian Institute of Technology Kharagpur, India BSc. MSc. (Hons) | Physics	July 2012 – April 2017
	Thesis: *"On the dynamics of parametrically forced oscillations in a damped planar double pendulum"* Advisor: Prof. Krishna Kumar	
Research Experience	**BIOS Health Ltd, Cambridge, UK** PhD Intern Project: *"Information flow in Peripheral Nervous System"* Advisor: Dr. Lorenz Wernish	February 2020 – February 2021
	Indian Institute of Science Education and Research Pune, India Project Assistant Project: *"Broad degree distribution in stochastic variant of the eXtreme Introvert Extrovert (XIE) model"* Advisor: Prof. Deepak Dhar	June 2017 – August 2017
	Tata Institute of Fundamental Research, Mumbai, India Visiting Researcher Project: *"Achieving perfect coordination among agents in co-action minority game"* Advisor: Prof. Deepak Dhar	May 2016 – July 2016
Awards	**President's PhD Scholarship** awarded by Imperial College London. (£80000)	October 2017 – March 2021
	Innovation in Science Pursuit for Inspired Research (INSPIRE) fellowship, awarded by Department of Science and Technology, Government of India. (₹ 400,000)	July 2012 – April 2017

Technical Skills	**Programming**
	C++, Python, Matlab
	Neuroimaging
	MNE, EEGLab, Fieldtrip, NiLearn
	Data analysis
	Time series analysis, Causality, Wavelet theory, Statistics

Publications

Raipal, Hardik, et al. "Interpretable XGBoost Based Classification of 12-lead ECGs Applying Information Theory Measures From Neuroscience." *2020 Computing in Cardiology*. IEEE, 2020.

Rajpal, Hardik, Fernando E. Rosas, and Henrik J. Jensen. "Tangled worldview model of opinion dynamics." *Frontiers in Physics* 7 (2019): 163.

Dolan, David, et al. "The improvisational state of mind: A multidisciplinary study of an improvisatory approach to classical music repertoire performance." *Frontiers in psychology* 9 (2018): 1341.

Rajpal, Hardik, and Deepak Dhar. "Achieving perfect coordination amongst agents in the co-action minority game." *Games* 9.2 (2018): 27.

Conferences

Talks

"Schizophrenia: From network to higher order measures" presented at NetsciX 2020, Tokyo, Japan

"Polarization and Intermittency: Tangled worldview model of Opinion Dynamics" presented at Netsci 2019, Burlington VT, USA

"Tangled worldview model of Opinion Dynamics" presented at the Conference on Complex Systems 2018, Thessaloniki, Greece

"Coordination amongst agents in a Minority Game" presented at the Visiting Students' Research Symposium 2016, TIFR Mumbai, India

Posters

"Quantifying Togetherness in a classical music concert" presented at Netsci 2019, Burlington VT, USA

"Tangled worldview model of Opinion Dynamics" presented at Stem4Britain 2019, UK Parliament, Westminster, London, UK

"Complexity and Improvisation in western classical music" presented at the Transdisciplinary workshop on Arts, Science and Cognition 2017, CIC Cuernavaca, Mexico

Teaching	**Demonstration**
	Complexity &Networks Lab | Imperial College London
	• Assisted in completion of computational lab projects involving modelling, simulations, and numerical analysis.
	• Responsible for marking the final project reports submitted by the students.
	Supervision
	• Matthew Fredericks, MSc Mathematics, Imperial College London
	• Joshua Southern, MSc Mathematics, Imperial College London
	• Alia Abdul Aziz, MSc Mathematics, Imperial College London
	• Emilie Pria, MSc Mathematics, Imperial College London
Schools and Courses attended	• Neuromatch Academy 2020
	• Models of Consciousness 2019, Oxford, UK
	• Enrico Fermi International School on Computational Social Science and Complex Systems 2018, Varenna, Italy
	• Oxford Summer School in Economic Networks 2018, Oxford UK
References	**Prof. Henrik Jeldtoft Jensen**
	Department of Mathematics
	Imperial College London,
	✉ h.jensen@imperial.ac.uk
	Dr. Fernando Rosas
	Department of Brain Sciences,
	Data Science Institute,
	Imperial College London,
	✉ f.rosas@imperial.ac.uk