



KIRAN SHARMA

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RESEARCH INTEREST

My research focuses on '*Analysis and Modelling of Socio-economic Complex Systems and Computational Finance*,' which includes data analyses, mathematical modelling and development of visualization tools in the studies of financial time series, language spreading, scientific collaborations, EEG signal analysis, etc.

ACADEMIC WORK EXPERIENCE

June 2016-till now: UGC – Senior Research Fellow, School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi, India

June 2014-May 2016: UGC - Junior Research Fellow, School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi, India

July 2011- April 2014: Assistant Professor, School of Computer Applications, Lovely Professional University, Jalandhar, Punjab, India

January 2011 - April 2011: Assistant Professor (on Contract), School of Computer Applications, Lovely Professional University, Jalandhar, Punjab, India

EDUCATION

July 2014-May 2015 -- Pre-Ph.D. Courses, School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi, India.

2007 - 2010 -- Master in Computer Applications , Department of Computer Science and Applications, Panjab University, Chandigarh, India.

2004 -2007 -- Bachelor in Computer Science, M.L.U. D.A.V. College, Phagwara, Guru Nanak Dev University, Amritsar, Punjab, India.

PUBLICATIONS

- ✚ **K. Sharma**, B. Gopalakrishnan, A. S. Chakrabarti and A. Chakraborti, “*Financial fluctuations anchored to economic fundamentals: A mesoscopic network approach*”, *SCIENTIFIC REPORTS* **7**: 8055 (2017).
- ✚ **K. Sharma**, G. Sehgal, B. Gupta, G. Sharma, A. Chatterjee, A. Chakraborti and G. Shroff, “*A complex network analysis of ethnic conflicts and human rights violations*”, *SCIENTIFIC REPORTS* **7**: 8283 (2017).
- ✚ **K. Sharma**, S. Shah, A.S. Chakrabarti and A. Chakraborti, “*Sectoral co-movements in the Indian stock market: A mesoscopic network analysis*”, In Y. Aruka and A. Kirman (Eds.), *Economic Foundations for Social Complexity Science: Theory, Sentiments, and Empirical Laws* (Springer, 2017) pages 211-238.
- ✚ **K. Sharma** and A. Chakraborti, “*Physicists' approach to studying socio-economic inequalities: Can humans be modelled as atoms?*”, to appear in the Proceedings of the International conference on “Social Statistics in India” of the Asian Development Research Institute (ADRI), held during June 24-27, 2016 in Patna, India; available at [arXiv:1606.06051](https://arxiv.org/abs/1606.06051) (2016).
- ✚ A. Chakraborti, D. Raina and **K. Sharma**, “*Can an interdisciplinary field contribute to one of the parent disciplines from which it emerged?*”, *Eur. Phys. J. Special Topics* **225**, 3127–3135 (Springer-Verlag 2016), Eds. A.S. Chakrabarti, M. Mitra and S. Sinha.
- ✚ Jean Léo Léonard, Els Heinsalu, Marco Patriarca, **Kiran Sharma**, Anirban Chakraborti, “*Patterns of linguistic diffusion in space and time: the case of Mazatec*”, in Abergel, F., Aoyama, H., Chakrabarti, B.K., Chakraborti, A., Deo, N., Raina, D., Vodenska, I. (Eds.), “*Econophysics and Sociophysics: Recent Progress and Future Directions*” (Springer-Verlag, Milan, 2016) pages:227-251.
- ✚ A. Gupta, D. Kumar, A. Chakraborti and **K. Sharma**, “*Performance Evaluation of Empirical Mode Decomposition Algorithms for Mental Task Classification*”, available at [bioRxiv; http://dx.doi.org/10.1101/076646](https://doi.org/10.1101/076646).

CONFERENCES & WORKSHOPS organized/attended

Member of Organizing Committee and Participant

- ✚ **Conference secretary**, Joint international conference on “Econophys-2017 and APEC-2017”, organized by Jawaharlal Nehru University and Delhi university to be held during November 15-18, 2017.
- ✚ **Convener**, Symposium on “Applications of Pattern Recognition & Machine Learning in Medical Science”, at School of Computational and Integrative Sciences, JNU, New Delhi, on September 18, 2017.

- ✚ **Organizer**, a panel discussion jointly with JNU and Heidelberg University on *“Big Data Science”* on April 11, 2017.
- ✚ Member, Organizing Committee and Participant, *“NanoBio Interface-2016”*, Jawaharlal Nehru University, New Delhi, India, during 18th - 20th March 2016.
- ✚ Member, Organizing Committee and Participant, *“ECONOPHYS-2015: International workshop on Econophysics and Sociophysics”*, Jawaharlal Nehru University & Delhi University, New Delhi, India, during 27 Nov-1Dec, 2015.
- ✚ Member, Organizing Committee and Participant, *“International Conference on Computational sciences: Wilkes100”*, Lovely Professional University, Jalandhar, Punjab, India, during Nov, 2013.
- ✚ Member, Organizing Committee and Participant *“International Conference on Computational sciences: Turing100”*, Lovely Professional University, Jalandhar, Punjab, India, during Sep, 2012.

Conferences and Symposium Attended

- ✚ Presented poster at the 2nd Symposium *“SCIENTEGRATION-2017”*, at SCIC, JNU on December 15, 2017, titled *“Sociophysics of ethnic conflicts and human rights violation”*,
- ✚ Given talk on *“Mesoscopic Networks in Complex Socio-economic Systems”* in SCIS-JNU Journal Club on 6 April, 2017.
- ✚ Presented poster at *“National Science day 2017”*, JNU on February 28, 2017, titled *“Financial fluctuations anchored to economic fundamentals: a mesoscopic network approach”*.
- ✚ Presented poster in conference *“Statistical Methods in Finance 2016”*, Chennai Mathematical Institute, Chennai, India, during December 18-22, 2016, titled *“ Sectoral co-movements in the Indian stock market: A mesoscopic network analysis”*.
- ✚ Presented poster in *“Statphys Kolkata-IX”*, India during December 13-16, 2016, titled *“Language dynamics approach to the study of Mazatec dialects”*.
- ✚ Given oral presentation in 1st symposium *“SCIENTEGRATION-2016’* at SCIS, JNU on September 14, 2016, titled *“Spatio-Temporal Dynamics of Languages: A Case Study of Mazatec Dialects”*.
- ✚ Presented poster in *“Statphys26-Lyon”* France, during July 18-22, 2016, titled *“Language dynamics approach to the study of Mazatec dialects”*.
- ✚ Given oral presentation in *“International Conference on Data Science Challenges”* Matera, Italy during July 8-11, 2016, titled *“Language dynamics approach to the study of Mazatec dialects”*.

Workshop Attended

- ✚ Participated in the *“2nd International workshop on Big data Analytics (WBDA-2017)”*, organized by SC&IS, JNU during March 17-18, 2017.
- ✚ Attended workshop *“India Complex Systems Winter School”* at Indian Institute of Science Education and Research (IISER) Mohali, Punjab, India, during December, 2015.

Invited Lectures

- ✚ Invited lecture on one day symposium “New Trends in Applied Mathematics: From Biology to Finance” at the School of Computational and Integrative Sciences, JNU, India on September 11, 2017, titled “Financial market states and crash behaviour”.
- ✚ Invited lecture at the 5th Symposium on “Economics, Physics and Finance”, at the CIC A.C., UNAM, Cuernavaca, Mexico, on August 11, 2017, titled “Multiplex networks: Relationship between financial and macroeconomic dynamics”.
- ✚ Invited lecture at “Gathering: Correlations in Time Series and Many-Body Systems” at the CIC A.C., UNAM, Mexico, on July 7, 2017, titled “Sociophysics: Complex network analyses of languages and ethnic conflicts”.
- ✚ Invited lecture at the conference “RMT, Time Series and Many-Body Systems”, at CIC A.C., UNAM, Mexico, on June 29, 2017, titled “A mesoscopic mapping between financial fluctuations and economic fundamentals”.
- ✚ Invited lecture at the Chennai Mathematical Institute, Chennai, India, on June 13, 2017, titled “Ethnic conflicts and human rights violation: A complex network analysis”.

ACADEMIC VISIT & FIELD WORK

2017

- ✚ ICF, National Autonomous University of Mexico (UNAM), Cuernavaca, Mexico during June 25-August 12, 2017 as Research scholar.
- ✚ University of Guadalajara, Mexico, during July 19-21, 2017.
- ✚ Indian Institute of Science Education and Research, Pune, India during June 19-21, 2017.
- ✚ Chennai Mathematical Institute, Chennai, India during June 6-16, 2017.

2016

- ✚ Institute of Mathematical Sciences, Chennai on December 26, 2016.
- ✚ Indian Statistical Institute Chennai, India during December 23-25, 2016.
- ✚ Politecnico di Torino, Torino, Italy during July 26-28, 2016.
- ✚ Ecole Centrale Paris, France during July 23-26, 2016.
- ✚ University of Padova, Padova, Italy during July 12-17, 2016.
- ✚ Scuola Normale Superiore, Pisa, Italy during July 5-7, 2016.
- ✚ University of Rome "La Sapienza", Roma, Italy during July 1-4, 2016.
- ✚ Indian Institute of Advanced Study, Shimla, Himachal Pradesh during May 19-June 18, 2016.
- ✚ Foundation for Ecological Security, Udaipur, Rajasthan during May 16-18, 2016.

AWARDS, Fellowship

- ✚ Honorable Mention for poster presentation in “Statistical Methods in Finance 2016” conference held in Chennai Mathematical Institute (CMI), Chennai, India, during December 18-22, 2016.

- ✦ “The best speaker award” in 1st symposium “SCIENTEGRATION-2016’ organized by SCIS, JNU, based on Ph.D. research work presentation, on September 14, 2016.
- ✦ “Young Investigator Training Award” established in the framework of research topic “Challenges in Data Science” held in Matera, Italy, during July 8-11, 2016.
- ✦ National Eligibility Test - Junior Research Fellow, University Grants Commission, Ministry of Human National Eligibility Test - Junior Research Fellow, University Grants Commission, Ministry of Human Resource Development (Government of India), during June 2013.

TEACHING ASSISTANT

- ✦ Teaching assistant for the course ‘*Introduction to Probability and Statistics*’ with Prof. Anirban Chakraborti and Prof. Joseph Whitmeyer at SCIS, JNU (Monsoon Semester 2016).
- ✦ Teaching assistant for the course ‘*Introduction to R programming*’ with Prof. Anirban Chakraborti at MCEC, JNU (Monsoon Semester 2016).
- ✦ Taught undergraduate and postgraduate courses (theoretical and practical) in Computers at the School of Computer Applications, Lovely Professional University, India from January, 2011- April, 2014.
 - Subjects at Undergraduate level: Programming in C, C++, and Data Structure.
 - Subjects at Postgraduate level: Data structure, Theory of automata, Artificial Intelligence, Linux.
- ✦ Taught analytical reasoning and mentored students appearing for placements inside the University (May-June, 2013).

PERSONAL DETAILS

- ✦ Date of Birth: 1st January, 1987
- ✦ Place of Birth: Phagwara, Punjab, India
- ✦ Nationality: Indian
- ✦ Marital status: Single
- ✦ Address: #C-114/12, Street No. 1A, New Satnampura, Phagwara, Punjab-144401, India.
- ✦ Google scholar link: <https://scholar.google.co.in/citations?user=M3EsWaUAAAAJ&hl=en&oi=ao>
- ✦ Researcher ID (Thomson Reuters): <http://www.researcherid.com/rid/Q-7139-2017>