

DR SHIVANI SINGH

Curriculum Vitae

AN & SK School of Information Technology
Indian Institute of Technology Delhi, India
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Current Position

4 Jan 2023–present **Institute Postdoctoral Fellow**, Amar Nath & Sashi Khosla School of Information Technology, IIT Delhi, India.

Topic of Research: Generalized Classical Set Theories, Theory of Computation and their Application in Knowledge Discovery in Databases.

Working with: Prof. Srikanta Bedathur, Head of School of Information Technology, IIT Delhi, India

Education

2017–2022 **Ph.D. (Mathematics)**, DST-Center for Interdisciplinary Mathematical Sciences, Banaras Hindu University (BHU), India.

Topic of Research: Fuzzy Rough Sets Assisted Mathematical Models for Feature Selection and Missing Data Imputation.

Supervisor: Prof. Tanmoy Som, Former HOD, Department of Mathematical Sciences, IIT(BHU), India

2013–2015: **M.Sc. (Mathematics)**, (1st div.), PPN PG College, CSJM University, Kanpur, UP, India.

2010–2013 : **B.Sc. (Maths, Physics & Chemistry)**, (1st div.), PPN PG College, CSJM University, Kanpur, UP, India.

2010 : **Senior Secondary 12th (Science)**, (1st div.), UP Board, UP, India.

2008 : **Matriculation 10th (Science)**, (1st div.), UP Board, UP, India.

Publications

Journal Articles

- 2021 S Shreevastava, **Singh, Shivani**, AK Tiwari, and T Som. Different classes ratio and laplace summation operator based intuitionistic fuzzy rough attribute selection. *Iranian Journal of Fuzzy Systems*, volume 18, pages 67–82. University of Sistan and Baluchestan, 2021.
- 2020 **Singh, Shivani**, Shivam Shreevastava, Tanmoy Som, and Gaurav Somani. A fuzzy similarity-based rough set approach for attribute selection in set-valued information systems. *Soft Computing*, volume 24, pages 4675–4691. Springer, 2020.
- 2019 **Singh, Shivani**, Shivam Shreevastava, Tanmoy Som, and Pankhuri Jain. Intuitionistic fuzzy quantifier and its application in feature selection. *International Journal of Fuzzy Systems*, volume 21, pages 441–453. Springer, 2019.

Conference Proceedings

- 2019 **Singh, Shivani**, Shivam Shreevastava, and Tanmoy Som. Attribute reduction of incomplete information systems: An intuitionistic fuzzy rough set approach. In *International Conference on Information Technology and Applied Mathematics*, pages 628–643. Springer, 2019.

Book Chapters

- 2021 **Singh, Shivani** and Tanmoy Som. Intuitionistic fuzzy rough sets: Theory to practice. *Mathematics in Computational Science and Engineering*, pages 52–66. Scrivener Publishing, 2021.

- 2020 Tanmoy Som, Shivam Shreevastava, Anoop Kumar Tiwari, and **Singh, Shivani**. Fuzzy rough set theory-based feature selection: A review. *Mathematical Methods in Interdisciplinary Sciences*, pages 145–166. Wiley Online Library, 2020.

Communicated Journal Article

- 2023 **Singh, Shivani**, "RPDA, RCFG and their application in Healthcare Systems".
 2022 **Singh, Shivani**, "Missing Value Imputation using Intuitionistic Fuzzy Rough Set Approach".

Fellowships & Awards

- 2023–present **Institute Postdoctoral Fellowship**, IIT Delhi, New Delhi.
 2017 –2022 **CSIR Junior & Senior Research Fellowship** of Council of Scientific and Industrial Research, Government of India, as a PhD fellow at Banaras Hindu University.
 2017 Qualified **CSIR-NET-JRF in Mathematical Sciences (AIR 35)** conducted by Council of Scientific & Industrial Research (CSIR), India.
 2017 Qualified **Graduate Aptitude Test in Engineering(GATE) in Mathematics (AIR 24)** conducted by National Co-ordination Board-GATE, DoHE, MHRD, Govt. of India.
 2017 Qualified **TIFR GS Exam** conducted by Tata Institute of Fundamental Research, India.

Membership of Academic Bodies

- 2020–present **European Society of Fuzzy Logic and Technology (EUFLAT)**, Member ID 1255.
 2019–present **European Mathematical Society (EMS)**, Member ID 28605.
 2023–**Fuzzy and Rough Sets Association (FRSA), India**, Member ID 21.
 Lifetime
 Membership

Teaching Experience

- July 2023 **Teaching Assistant for the course of 'Formal Language and Automata Theory' of 'Theoretical Computer Science' at IIT Delhi**, Specialization- Automata Theory.
 –present
 Feb **Teaching of the topic 'Ring Theory' of 'Mathematics' at Academy of Mathematical Education, New Delhi, India**, Specialization- Abstract Algebra.
 2022–Dec
 2022

Project Work

- 2023 Mentoring project on the topic **Knowledge Discovery in Databases using Uncertainty handling methods** at IIT Delhi.
 2022 Mentored project on the topic **Intuitionistic fuzzy c-means and entropy based feature selection** at IIT BHU.
 2018 Worked on project on the topic **Machine learning & Deep learning for computer vision** at IIT BHU.

Other Academic Activities

- 2023 Got recognition as Reviewer for contributing to the journals **Fuzzy Sets & Systems and Information Sciences (ELSEVIER Publication)**.
 2019 Recipient of **Certificate of Appreciation** for contribution in organizing an '*International Workshop: CIMPA School on Finsler Geometry and Applications*' during Dec 05-15, 2019 held at **DST-CIMS, Banaras Hindu University, Varanasi, India**.

- 2017 Contribution in organizing a '**Short term course on Fixed Point Theory and Dynamical System**', during Nov 20-23, 2017 at **Department of Mathematical Sciences, IIT(BHU), Varanasi, India**.

Presented research paper in National/International Conferences

- 2023 **European Society of Fuzzy Logic and Technology (EUFLAT 2023)** on the topic "*Feature Selection in Incomplete Information System using Fuzzy Rough Set Approach*" organized by EUFLAT, Spain during Sept. 04-08.
- 2022 **International conference on Fuzzy Sets & Fuzzy Logic- Generalizations and Applications** on the topic "*Feature Selection in Set-valued Information System using Fuzzy Tolerance-based Rough Set Approach*" organized by Fuzzy and Rough Sets Association (**FRSA**), Agartala, Tripura, India during Sept. 06-08, 2022.
- 2022 **International Conference on Fuzzy Set Theory and Applications (FSTA)** on the topic "*Intuitionistic Fuzzy Rough Sets Assisted Missing Data Imputation*" organized by University of Ostrava, Bratislava during Jan. 30-Feb 04, 2022.
- 2021 **International conference on (FMAACM)** on the topic "*Laplace Distribution based Intuitionistic Fuzzy Rough Set Attribute Selection*" hosted online by Pondicherry University, India during Feb. 25-26, 2021.
- 2019 **International conference on New Vistas in Pure & Applied Mathematics and Statistics (ICNVPAMS)** on the topic "*Missing Data Imputation using Intuitionistic Fuzzy Rough Set Approach*" organized by University of Rajasthan, Jaipur, Rajasthan, India during Nov. 24-26, 2019.
- 2019 **International Conference on Information Technology and Applied Mathematics(ICITAM)** on the topic "*Incomplete Information Systems: An Intuitionistic Fuzzy Rough set Approach*" organized by Haldia Institute of Technology, Haldia, West Bengal, India during March 07 -09, 2019.
- 2018 **International Conference of International Academy of Physical Sciences (CONIAPS XXIII)** on the topic "*DC's ratio based Intuitionistic fuzzy rough attribute selection*" organized by Nepal Academy of Science and Technology (NAST), Kathmandu, Nepal during Nov. 16-18, 2018.
- 2018 **International Conference on Frontiers in Industrial and Applied Mathematics (FIAM)** on the topic "*A Tolerance based Fuzzy Rough Set Approach for Attribute Selection in Set-Valued Information System*" organized by Dept. of mathematics, NIT Hamirpur, India during May 01-02, 2018.

Computer skills

Operating Systems	Windows, Linux
Programming Languages	Python, MATLAB
Database Softwares	WEKA, KEEL

Personal Data

Date of Birth	August 30, 1994
Gender	Female
Nationality	Indian
Languages	Hindi, English

Referees

Prof. Tanmoy Som

Professor and Former HOD

Dept. of Mathematical Sciences

Indian Institute of Technology(BHU), India

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Prof. Radko Mesiar

Professor RNDr.

Faculty of Civil Engineering,

Department of Mathematics

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Prof. Srikanta Bedathur

Chair Professor of AI and HOD of SIT

Dept. of Computer Science

Indian Institute of Technology(Delhi), India

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Dr. Manjari Gupta

Assoc. Professor and Co-ordinator

DST-Centre for Interdisciplinary Mathematical

Sciences, Banaras Hindu University, India

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