Sandeep Kumar

Address Department of Mathematics, Shaheed Bhagat Singh College (University of Delhi)
Sheikh Sarai, Delhi - 110017
Nationality Indian **Email** sandeep_kumar@sbs.du.ac.in

Education

2017-2022 PhD (Machine Learning) - Indraprastha Institute of Information Technology, Delhi

2008-2010 M.Tech. (Computer Application) - Indian Institute of Technology, Delhi

2006-2008 M.Sc. (Mathematics) - Indian Institute of Technology, Delhi

2003-2006 B.A. (Hons) Mathematics - University of Delhi

Experience

June 2015 - Present Shaheed Bhagat Singh College, University of Delhi
Assistant Professor

Jan 2015 - June 2015 Ramjas College, University of Delhi
Assistant Professor, Adhoc

Jan 2014 - Jan 2015 Vivekananda College, University of Delhi
Assistant Professor, Adhoc

Jan 2012 - Aug 2013 Miranda House College, University of Delhi
Assistant Professor, Adhoc

July 2010 - Jan 2012 Strand Life Sciences, Bangalore
Software Associate

Courses Taught

Cryptography and Network Security, Number Theory, Discrete Mathematics, Essentials of Python, C Language, C++ Language, Computer Algebra System, Latex and HTML, Numerical Methods, Real Analysis, Algebra, Group Theory, Ring Theory, Linear Algebra, Differential Equations, Probability and Statistics, Complex Analysis, Calculus, Advance Linear Algebra.

Awards

- 21 All India Rank in JAM (Joint admission test for admission in M.Sc at IIT's)
- 111 All India Rank in GATE.
- CSIR-UGC NET, 2008.

Technical Skills

C, C++, Java, Python, SAGE, Mathematica, Maxima, Matlab, Octave, R, Latex, HTML

Publications

- **Sandeep Kumar**, Koushik Biswas, and Ashish Kumar Pandey, Forecasting Formation of a Tropical Cyclone Using Reanalysis Data. Advances in Artificial Intelligence and Machine Learning. 2024;4(3):158.
- Revocable Identity-based encryption from Codes with Rank Metric. Donghoon Chang, Amit Kumar Chauhan, **Sandeep Kumar**, Somitra Kr. Sanadhaya, 2018, CT-RSA.
- **Sandeep Kumar**, Koushik Biswas, and Ashish Kumar Pandey, Prediction of landfall intensity, location, and time of a tropical cyclone. In Proceedings of the AAAI Conference on Artificial Intelligence, volume 35. 2021 (ranked no. 44 as per h5 index in the list - `https://scholar.google.com/citations?view_op=top_venues&hl=en`).
- Koushik Biswas, **Sandeep Kumar**, Shilpak Banerjee, and Ashish Kumar Pandey, Smooth Maximum Unit: Smooth Activation Function for Deep Networks using Smoothing Maximum Technique. In Conference on Computer Vision and Pattern Recognition (CVPR), 2022 (ranked no. 4 as per h5 index in the list - `https://scholar.google.com/citations?view_op=top_venues&hl=en`)
- Koushik Biswas, **Sandeep Kumar**, Shilpak Banerjee, and Ashish Kumar Pandey, ErfAct and Pserf: Non-monotonic smooth trainable Activation Functions. In Proceedings of the AAAI Conference on Artificial Intelligence, 2022 (ranked no. 44 as per h5 index in the list - `https://scholar.google.com/citations?view_op=top_venues&hl=en`).
- Koushik Biswas, **Sandeep Kumar**, Shilpak Banerjee, and Ashish Kumar Pandey, TanhSoft—Dynamic Trainable Activation Functions for Faster Learning and Better Performance, in IEEE Access, vol. 9, pp. 120613-120623, 2021, doi: 10.1109/ACCESS.2021.3105355 (ranked no. 32 as per h5 index in the list - `https://scholar.google.com/citations?view_op=top_venues&hl=en`) .
- Koushik Biswas, **Sandeep Kumar**, Shilpak Banerjee, and Ashish Kumar Pandey, SAU: Smooth activation function using convolution with approximate identities, ECCV 2022 ((ranked no. 40 as per h5 index in the list - `https://scholar.google.com/citations?view_op=top_venues&hl=en`)).
- **Sandeep Kumar**, Koushik Biswas, and Ashish Kumar Pandey, Predicting Landfall's location and time of a tropical cyclone using reanalysis data. In Artificial Neural Networks and Machine Learning – ICANN 2021. Springer International Publishing, 2021. ISBN 978-3-030-86380-7.
- **Sandeep Kumar**, Koushik Biswas, and Ashish Kumar Pandey, Track prediction of tropical cyclones using long short-term memory network. In 2021 IEEE 11th Annual Computing and Communication Workshop and Conference (CCWC) 2021.
- **Sandeep Kumar**, Koushik Biswas, and Ashish Kumar Pandey, Will a Tropical Cyclone make Landfall? Journal of Neural Computing and Applications, 2022.
- Koushik Biswas, **Sandeep Kumar**, Shilpak Banerjee, and Ashish Kumar Pandey, EIS - Efficient and trainable activation functions for better accuracy and performance. In Artificial Neural Networks and Machine Learning –ICANN 2021. Springer International Publishing, Cham, 2021. ISBN 978-3-030-86340-1.
- Koushik Biswas, **Sandeep Kumar**, and Ashish Kumar Pandey (2021). Intensity prediction of tropical cyclones using long short-term memory network. URL: `https://arxiv.org/abs/2107.03187`.
- **Books**:
  - Latex and HTML, ISBN - 978-81-928184-6-7, Year - 2016, Publisher Vardhman Publications, Delhi.
  - Graph Theory, ISBN – 978-81-928184-4-3, Year – 2015, Publisher – Vardhman Publications, Delhi.
  - Practical using Mathematica for Calculus-I, ISBN – 978-81-928184-3-6, Year – 2014, Publisher – Vardhman Publications, Delhi.
  - Practical using Mathematica for Numerical Methods and Analysis - II, ISBN - 978-81-928184-2-9, Year – 2014, Publisher – Vardhman Publications, Delhi.

Invited Lectures

- Two lectures on *Applications of Mathematica* at one day workshop conducted by MMH College, Ghaziabad, September 20, 2018
- Invited talk on *Cryptography: A career option for Mathematics students* conducted by Satyawati College, University of Delhi, August 02, 2018.
- Three lectures at the Faculty Development Programme, *Mathematica: A tool fo computational Analysis* conducted by Ramjas College, University of Delhi, March 10-11, 2018
- Three Lectures at National Workshop on *Latex and Website Designing* conducted by Department of Mathematics, Shaheed Bhagat Singh College, University of Delhi, August 11-12, 2016.
- Talk on *Cryptography: A Career option for Mathematics Students* at the seminar *Career with Mathematics* conducted by Department of Mathematics, Shaheed Bhagat Singh College, University of Delhi, November 10, 2017.

Workshop/Conferences Attended

- FDP: Python Essentials, Programming and Analytics, Guru Angad Dev Teaching Learning Center, SGTB Khalsa College, University of Delhi, Oct 2022.
- FDP: Computer Algebra System, IQAC Ramjas College and Mahatma Hansrah Faculty Development Centre, Hansraj College, University of Delhi, March, 2023.
- NEP 2020 Orientation Sensitization Programme, Centre for Professional Development in Higher Education (UGCMMTTC), University of Delhi, Feb 2024.
- National Instructional Workshop on Cryptology, MNNIT, Allahabad, June 06-10, 2018.
- Paper presentation at Annual Conference of Ramanujan Mathematical Society, conducted by Department of Mathematics, University of Delhi, June 01-03, 2018.
- School on Information-theoretic Cryptography conducted by IISC, Bangalore, January 04-08, 2018.
- Orientation Programme conducted by CPDHE, University of Delhi, November 21- December 19, 2017.
- Instructional School on Advance Linear Algebra conducted by IIT, Gandhinagar, July 10-22, 2017.
- International Conference on Cryptography: Indocrypt, conducted by ISI Calcutta, December 11-14, 2016.
- Capacity building workshop on development of e-content, conducted by ILLL, University of Delhi, June 21, 2016.
- Workshop on Foundation Courses, conducted by UGC, July 15-17, 2013.
- FDP: Mathematica - A system for Modern Technical Computing, conducted by Mahatma Hansraj Faculty Development Center, Hansraj college, DU (under PMMMNMTT), Aug 21-26, 2020.
- FDP: Advanced Concepts for Developing Moocs, conducted by Teaching Learning Center, Ramanujan College, University of Delhi (under PMMMNMTT), July 02-17, 2020.
- FDP: Open Source Tools for Research, conducted by Teaching Learning Center, Ramanujan College, University of Delhi (under PMMMNMTT), June 08-14, 2020.

Administrative Responsibilities

- Convenor, Career Counselling and Guidance Cell, 2024-25
- Member Administrative Reforms Center, 2024-25.
- Member, Enabling Unit, 2024-25.
- Member Research Cell, 2023.

- Convenor Admission Committee - OBC, 2022.
- Convenor Admission Committee - OBC, 2021.
- Teacher-Incharge of the department, 2020-21.
- Convenor NSS committee of staff council, 2021-23.
- Convener of Computerization committee of staff council for the sessions 2016-17 and 2017-18.
- Member of Attendance committee of staff council for the session 2017-18.
- Member of Website committee of staff council for the session 2016-17 and 2017 -18.
- Member of NSS committee of staff council for the session 2015- 16, 2017-18 and 2018-19.
- Member of organizing committee of International Conference on Applicable Analysis, February 08-11, 2017.
- Member of organizing committee of National Workshop on Latex and Website Designing, August 11-12, 2016.
- Member of Departmental Admission committee for the session 2015-16, 2016-17 and 2017-18.
- Convener of Departmental Computerization committee for the session 2016-17.
- Member of Departmental NAAC committee during 2016-17.

Membership of Learned Societies

- Life time member of Cryptology Research Society of India (CRSI).

References

Name	Dr. Somitra Kr. Sanadhaya	**Name**	Dr. Asish Kumar Pandey
Institute	IIT, Ropar	**Institute**	IIIT, Delhi
Designation	Associate Professor	**Designation**	Assistant Professor
Contact	somitra@iitrpr@ac.in	**Contact**	ashish.pandey@iiitd.ac.in