Department of Statistics

Dr. Santosh Kumar Chaudhary, Ph.D.

Assistant Professor

Department of Statistics

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Google Scholar Link	https://scholar.google.co.in/citations?user=RM78MQ8AAAAJ&hl=en
Journal Papers	**11**
Conference Papers	**2**

Brief Profile	Dr. Santosh Kumar Chaudhary is an Assistant Professor in the Department of Statistics at the Central University of Jharkhand, Ranchi. He earned his Ph.D. in Mathematical Statistics from the Indian Institute of Technology (IIT) Kharagpur in 2025. He holds dual master's degrees — one in Statistics from IIT Bombay (2021) and another in Mathematics from IIT Delhi (2018). He completed his B.Sc (H) in Mathematics from the University of Delhi in 2015. Dr. Chaudhary's research interests lie primarily in Mathematical Statistics, with a focus on Reliability Theory, Entropy and Extropy measures, and Hypothesis Testing. He has contributed to the advancement of statistical science through his work on estimation and information-theoretic measures. In his academic career, he has distinguished himself with top national ranks: AIR 17 in IIT-JAM, AIR 03 in GATE, and AIR 50 in CSIR-JRF. Before joining Central University of Jharkhand, Dr. Chaudhary served as an Assistant Professor at BIT Mesra, Ranchi (in 2024) and Shiksha 'O' Anusandhan University, Bhubaneswar (in 2021), where he was actively involved in teaching and research in statistics. He was also selected for assistant data analyst at CRIS, Indian Railways in 2022.

EDUCATION

- Matriculation (2010)

Marks-70.20 %
Bihar School Examination Board,
Shree Gandhi (Government) High School, Parihar, Bihar, India

- Intermediate in Science (2012)

Marks-79%
Bihar School Examination Board,
Shree Lakshmi Kishore (Government) College, Sitamarhi, Bihar, India

- B.Sc. (H) Mathematics (2012-2015)

Marks - 84.54 %

Mathematics Department,
Zakir Husain Delhi College, University of Delhi (DU), India

- M.Sc. Mathematics (2016-2018)

CPI-6.067/10
Mathematics Department,
Indian Institute of Technology (IIT), Delhi, India

- M.Sc. Applied Statistics & informatics (2019-2021)

CPI-7.59/10
Mathematics Department,
Indian Institute of Technology (IIT), Bombay, India

- PhD. Statistics (2021-2025)

CPI-8.16/10 (Course Work)
Mathematics Department,
Indian Institute of Technology (IIT), Kharagpur
Supervisor: Dr. Nitin Gupta
Thesis Title: On Weighted Information Measure: Properties, Inference and Applications.
Ph.D. Registration date: 2 August 2021.
Ph.D. Thesis Submission Date: 8 August 2024.
Ph.D. Défense Seminar Date: 24th April 2025.
Ph.D. Convocation Date: 15 July 2025

PROFESSIONAL EXPERIENCE

- Assistant Professor of Statistics at Centre for Data Science, ITER College, Shiksha O Anushandhan University in Bhubaneswar. (June 1, 2021, to August 1, 2021).

- Assistant Professor of Statistics at Centre for Quantitative Economics and Data Science, BIT Mesra, Ranchi, Jharkhand (April 12, 2024, to December 18, 2024).

- Assistant Professor of Statistics in Department of Statistics at Central University of Jharkhand, Ranchi, Jharkhand (December 23, 2024, to till date).

PUBLISHED PAPERS IN JOURNAL

1. Chaudhary, S. K., & Gupta, N. (2023). General weighted cumulative residual (past) extropy of minimum (maximum) ranked set sampling with unequal samples. Communications in Statistics - Theory and Methods, 53(22), 8076–8096. https://doi.org/10.1080/03610926.2023.2279910. (SCI, IF-0.9, Q2)
2. Kumar Chaudhary, S., Gupta, N., & Kumar Sahu, P. (2023). On general weighted cumulative residual extropy and general weighted negative cumulative extropy. Statistics, 57(5), 1117–1141. https://doi.org/10.1080/02331888.2023.2241595. (SCI, IF-1.0, Q2)
3. Gupta, N., & Chaudhary, S. K. (2023). On general weighted extropy of ranked set sampling. Communications in Statistics - Theory and Methods, 53(12), 4428–4441. https://doi.org/10.1080/03610926.2023.2179888. (SCI, IF-0.9, Q2)
4. Kumar Chaudhary, S., & Gupta, N. (2024). General weighted extropy of minimum and maximum ranked set sampling with unequal samples. Communications in Statistics - Theory and Methods, 54(11), 3174–3199. https://doi.org/10.1080/03610926.2024.2386420. IF-0.9, Q2

5. Gupta, N., Chaudhary, S.K. (2024). Some characterizations of continuous symmetric distributions based on extropy of record values. Stat Papers 65, 291–308. https://doi.org/10.1007/s00362-022-01392-y. (SCI, IF-1.1, Q1)
6. Chaudhary, S. K., Roy, A., & Gupta, N. (2025). On cumulative past information generating function. Communications in Statistics - Theory and Methods, 54(18), 5784–5805. https://doi.org/10.1080/03610926.2024.2446397. (SCI, IF-0.9, Q2)
7. Chaudhary, S. K. (2025). Varextropy measure with application. Stochastic Models in Probability and Statistics, 2(1), 101–117. Ferdowsi University of Mashhad. Doi:10.22067/smps.2025.92576.1044. (Q3, Peer Reviewed)
8. Chaudhary, S. K., & Gupta, N. (2026). Testing of symmetry based on cumulative past and residual extropy of record values. Journal of the Iranian Statistical Society (JIRSS), 25(1), 17–38. https://doi.org/10.22034/jirss.2026.2082667.1175 (Q4, IF-0.19, SCIE).
9. Chaudhary, S. K. and Sahu, P. K (2026). Uncertainty-Based Analysis of Negation of Probability Distributions, REVSTAT-Statistical Journal. (Accepted for Publication On 16th April 2026). (Q3, IF-1.2, SCI).
10. Chaudhary, S. K., & Bhagwati Devi (2026). Record Values Based Inaccuracy Measures with an Application to Testing Symmetry. Asian Journal of Statistical Sciences. Advance online publication. (Accepted for publication on 30 July 2026). (Scopus Indexed Pear Reviewed Journal).
11. Sahu, P. K., Chaudhary, S. K., Gupta, N. "Quantile Based Reliability Analysis of Weighted Extropy." *Probability in the Engineering and Informational Sciences*, accepted for publication on 28th August 2026. (Q2, IF- 1.1, SCI)

CONFERENCE PROCEEDINGS

1. Gupta, N., Kumar Chaudhary, S. (2023). On Partial Monotonicity of Some Extropy Measures. In: Giri, D., Gollmann, D., Ponnusamy, S., Kouichi, S., Stanimirović, P.S., Sahoo, J.K. (eds) Proceedings of the Ninth International Conference on Mathematics and Computing. ICMC 2023 2023. Lecture Notes in Networks and Systems, vol 697. Springer, Singapore. https://doi.org/10.1007/978-981-99-3080-7_14
2. Chaudhary, S.K., Gupta, N. (2026). Characterization of Exponential Distribution with Application in Testing Exponentiality. In: Giri, D., Ray, I., Ponnusamy, S., Verma, R.M., Joshi, J.B.D. (eds) Proceedings of the Eleventh International Conference on Mathematics and Computing. ICMC 2025. Lecture Notes in Networks and Systems, vol 1420. Springer, Singapore. https://doi.org/10.1007/978-981-96-6941-7_33

BOOK AUTHORED

- S. K. Chaudhary, GATE Statistics: Previous Year Questions with Detailed Solutions (2019–2026). Astitva Prakashan, India, First Edition, 2026. ISBN: 978-9376864874.

CONFERENCE, WORKSHOPS & SEMINARS ATTENDED

- Completed One-Day Orientation Programme on "NAAC Assessment and Quality Parameters of Higher Education: Transition from the Old Revised Accreditation Framework (RAF) to the New Binary System of Accreditation", organized by the Internal Quality Assurance Cell (IQAC), Central University of Jharkhand, 23 June 2026.
- Completed the National Mission Karmayogi training to enhance citizen-centric service delivery and align individual performance with national governance goals at CUJ on 11 September 2025.
- Participated in E-Quiz on National Statistics Day 2023, organized by Dept. of Mathematics and Statistics, St. Francis College, Bengaluru, June 30, 2023.

- Attended Instructional School for Teachers on "Advanced Topics in Statistical Learning", Indian Statistical Institute (ISI), Kolkata, July 11–23, 2022.
- Attended International Workshop on Distribution Theory and its Applications, Kerala University, Dec 13–15, 2022.
- Attended workshop on "History of Indian Mathematics before 16th Century", The National Academy of Sciences, India (NASI), Allahabad, Dec 30–31, 2019.
- Attended workshop on "R & Python Programming", Indian Institute of Technology (IIT) Bombay, Aug 30–31, 2019.
- Attended workshop on "Group and Symmetry", NASI, Allahabad, Dec 22–23, 2017.
- Attended workshop on "Communication Skills", Zakir Husain Delhi College (University of Delhi), Sept 30, 2014.
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TALK DELIVERED/ PAPER PRESENTATION

- Presented a research seminar on topic "Characterizations and Testing of Symmetry Using Extropy of Record Values" at Department of Mathematics, IIT GOA on 15th July 2026.
- Presented a research seminar on topic "Characterizations and Testing of Symmetry Using Extropy of Record Values" at Department of Mathematics, IIT Hyderabad on 11th June 2026.
- Invited Speaker and Paper Presenter at the 10th International Webinar on "Recent Trends in Statistical Theory and Applications" (WSTA-2025), held during June 29 – July 2, 2025, organized by the University of Kerala; presented the paper titled "Cumulative Past Information Generating Function" on July 01, 2025.
- Delivered an invited talk at the National Workshop on "Statistical Learning and Data Science: Foundations and Applications", held during September 10–14, 2025, at Sri Padmavati Mahila Vishvavidyalayam, Tirupati, Andhra Pradesh (517502), on the topic "Information Measures in Statistics."
- Delivered an invited lecture as Resource Person in the Guru Dakshta 26th Faculty Induction Programme (FIP) organized by the UGC–Malaviya Mission Teacher Training Centre, Ranchi University, Ranchi, on 05 January 2026 at the national level, on the topic "Qualitative and Time-Bound Implementation of NEP 2020 in HEIs: Priorities, Concerns and Way Forward."
- Invited Panellist, Panel Discussion on "Teaching with Artificial Intelligence", organized by the Centre for Teaching with Artificial Intelligence, Indian Institute of Management (IIM) Ranchi, Ranchi, India, 19 February 2026. Invited to contribute insights on the integration of Artificial Intelligence in classroom teaching, pedagogy design, and assessment practices.
- Served as Resource Person for the UGC-NET (Statistics) Free Online Coaching Programme (May–June 2026) organized by the Indian Association of Statistics and Data Science (IASDS), delivering lectures on Matrix Algebra for UGC-NET Statistics aspirants on 11 June 2026.
- Invited Speaker and Paper Presenter at the 11th International Webinar on "Recent Trends in Statistical Theory and Applications" (WSTA-2026), held during July 2 – July 5, 2025, organized by the University of Kerala; presented the paper titled "Uncertainty analysis based on negation Distribution" on 4th July 2026.
- Presented a paper titled "Varextropy Measure with Application" at the National Conference on Recent Trends in Mathematics and Statistics (RDMS-2026) organized by the Department of Mathematics and Department of Statistics, Central University of Jharkhand, Ranchi, during 27–28 February 2026.
- Presented paper titled "Characterization of Exponential Distribution with Application in Testing Exponentiality", 11th International Conference on Mathematics and Computing (ICMC 2025), IIT Bhillai, India, Jan 9–11, 2025.
- Presented paper titled "General Weighted Extropy of Ranked Set Sampling with Unequal Sample", Annual Conference of the International Indian Statistical Association (IISA) 2024, Cochin University of Science and Technology (CUSAT), Dec 27–31, 2024.
- Presented paper titled "General Weighted Cumulative Residual (Past) Extropy of Minimum (Maximum) Ranked Set Sampling with Unequal Samples", International Conference on Advances in Data Analytics & Official Statistics, Savitribai Phule Pune University, May 24–26, 2024.

- Presented paper titled “Some Characterizations of Continuous Symmetric Distributions Based on Extropy of Record Values”, International Workshop on Reliability Theory and Survival Analysis (IWRTSA-2023), MIT, Manipal, Dec 20–22, 2023.
- Presented paper titled “On Partial Monotonicity of Some Extropy Measure”, 9th International Conference on Mathematics and Computing (ICMC 2023), BITS Pilani K. K. Birla Goa Campus, Jan 6–8, 2023.
- Presented paper titled “On Partial Monotonicity of Some Extropy Measure”, 88th Annual Conference of the Indian Mathematical Society, BIT Mesra, Ranchi, Dec 27–30, 2022.

- Presented paper titled “On Partial Monotonicity of Some Extropy Measure”, Eighth International Conference on Statistics for the Twenty-first Century (ICSTC 2022), Kerala University, Dec 16–19, 2022.

ORGANIZER: CONFERENCE, WORKSHOPS & SEMINARS

- Served as an Organizing Committee Member for the International Conference on Mathematics and Statistics in the Era of Data Science (ICMSDS-2025), organized by the Departments of Mathematics and Statistics, Central University of Jharkhand (CUJ), Ranchi, held in hybrid mode from March 18–20, 2025.
- Served as Conference Committee Member and Treasurer for the National Conference on Recent Developments in Mathematics and Statistics (RDMS–2026), organized by the Departments of Mathematics and Statistics, Central University of Jharkhand, Ranchi, conducted in hybrid mode on January 28–29, 2026.

FACULTY DEVELOPMENT PROGRAMS PARTICIPATED

- Completed the 17th Guru-Dakshata Faculty Induction Programme (FIP) at UGC-MMTTC, Guru Ghasidas Vishwavidyalaya, Bilaspur (June 2–30, 2025), in online mode.
- Participated in a Capacity Building Program on Quantitative & Qualitative Research Methods at Central University of Jharkhand (Dec 1–13, 2025), sponsored by ICSSR, in offline mode.
- Participated in the Capacity Building Programme on Promoting Positive Mental Health, Resilience, and Wellbeing in Higher Education Institutions (HEIs), organized by the Malaviya Mission Teacher Training Programme (MMTTP), Department of Higher Education, Ministry of Education, Government of India, 16 June 2026 (Online).

UG/PG PROJECT SUPERVISION

- Madhu Sakshi, M.Sc. Statistics, Central University of Jharkhand (CUJ) (2023–2025)
  Duration: January–June 2025 (Course Project)
  Project Title: On Maximum Entropy Negation of Probability Distribution: Overview and Implementation
- Abhishek Kumar, M.Sc. Statistics, Central University of Jharkhand (CUJ) (2023–2025)
  Duration: January–June 2025 (Course Project)
  Project Title: On Maximum Extropy Negation of Probability Distribution: Overview and Implementation
- Sangam Bara, B.Sc. Mathematics, Pondichéry University (POU) (2024–2027)
  Duration: May–July 2025 (Summer Project)
  Project Title: Probability and Statistics for Real-World Applications
- Wagisha Sahu, M.Sc. Statistics, Central University of Rajasthan (CURAJ) (2024–2026)
  Duration: January–June 2026 (Course Project)
  Project Title: Entropy Analysis of Human Death Uncertainty for Indian Data
- Akansha Soni, M.Sc. Statistics, Central University of Jharkhand (CUJ) (2024–2026)
  Duration: January–June 2026 (Course Project)
  Project Title: Maximum Entropy of Random Permutation Set

- Shivani Kumari, M.Sc. Statistics, Central University of Jharkhand (CUJ) (2024–2026)
  Duration: January–June 2026 (Course Project)
  Project Title: A Markov Chain Model for Analysing Students' Performance in Adaptive E-Assessment
- **Aleena Chinnu Rajan**, M.Sc. Applied Statistics and Informatics, Department of Mathematics, IIT Bombay
  Duration: May-July 2026 (Summer Project)
  Project Title: *Behavioural Fraud Detection using Unsupervised Learning: A Segmentation and Anomaly-Detection Study on the IEEE-CIS Transaction Dataset*
  Role: Course Project Supervisor. Guided the student in applying unsupervised machine learning techniques for behavioural fraud detection, customer segmentation, and anomaly detection using the IEEE-CIS Transaction Dataset.