Dr. Sachin Kumar

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Introduction

He is Assistant Professor of Computer Science/Artificial Intelligence at the Cluster Innovation Center, University of Delhi. He is Research Associate at Harvard University and has also been the Postdoctoral Fellow at Harvard University. He advances cutting-edge research at the intersection of artificial intelligence (AI)/machine learning (ML), Large Language Models (LLMs), AI Safety and Governance, AI for Social Good, AI for Climate and Sustainability, and Computational Social Systems(CSS). He has an extensive publication record, with more than 50 research publications, including research articles, books, book chapters, and conference papers at top and reputable venues. Dr. Kumar holds PhD in Computer Science from the University of Delhi. His doctoral work, *"Modeling and Prediction of Building Energy Performance Using Machine Learning Approaches"*, has been published in top-tier journals such as Energy and Buildings (Elsevier, IF = 7.6) and Sustainable Cities and Society (Elsevier, IF = 13.0). Complementing his academic achievements, Dr. Kumar has industry experience as a Software Development Engineer at S&P Global Information Mosaic, UK, bringing together practical engineering expertise and scholarly rigor. With over 13 years of combined experience in industry, teaching, and research, he has authored three influential books: *"Operating Systems: Concept Building and Problem-Solving Approach (Cengage, USA)"*,*" Digital Transformation, Artificial Intelligence and Society: Opportunities and Challenges (Springer Nature, awarded the most cited book award)"*, and *"Artificial Intelligence: Understand, Adapt, Succeed (Digital Horizon Media)"*. He has also edited volume *"Responsible Artificial Intelligence for Ethical and Governance Challenges in Society: Critical Reflections from the Policy Landscape, (Springer Nature)"*. Dr. Kumar has served as principal investigator on several funded research projects related to AI Safety, AI for social good, urban challenges, governance and public policy, climate change and sustainability, and CSS. His expertise is recognized globally, with invitations to present his work at premier international conferences, including IEEE WCCI, IEEE IJCNN, and ACM ICEGOV. He has also contributed to AI governance and policy domains, such as G20 policy documents, and at the Observer Research Foundation(ORF). He has trained over 5000 students, professionals, and government officials in AI skills through his invited talks. As an active member of IEEE and ACM, he is committed to developing AI-driven solutions for real-world societal challenges and regularly engages in public discourse on the emerging technologies and societal impacts in national newspapers, podcasts, and Social Media. He is the Founder of podcast The Human Project(@profsachinkumar1), A platform that empowers people to become the best version of themselves. He is also the Founder of *AI for Social Good* research group.

Education

Research Associate **Harvard University, USA**

Postdoctoral Fellow **Harvard University, USA**

Doctor of Philosophy(PhD) — **University of Delhi, Delhi**
Dept. of Computer Science

Master of Computer Applications(MCA) — **University of Delhi, Delhi**
Dept. of Computer Science

B.Sc(Physics, Chemistry, Mathematics) — **CCS University, Meerut, Uttar Pradesh**
Meerut College Meerut

Career Profile - Appointments

Harvard University — **USA**
Post Doctoral Fellow — *Aug 2025 – Till present*

Cluster Innovation Centre, University of Delhi — **Delhi**
Assistant Professor — *Jul 2015 – Till present*
- Teaching technology courses, conducting substantial research on AI/ML for complex problems, and solving social problems.

University of Delhi Foundation — **Delhi**
Executive Officer — *Dec 2022 – Till present*
- To build and support the Endowment Fund, promote interaction among alumni, students, and well-wishers, and organize reunions of the alumni through seminars, meetings, lectures, discussions, conferences, and study tours.

Institutions of University of Delhi — **Delhi**
Assistant Professor — *Jul 2012 – Jul 2015*
- Teaching technology courses, conducting substantial research on AI/ML for complex problems, and solving social problems.

S&P Global IHS Markit Information Mosaic — **UK**
Software Development Engineer — *Aug 2011 – Jul 2012*
- Developed on end-to-end automation of corporate actions and income processing, functionality with a designed and developed GUI, Security, and Business layer with Public Key Infrastructure(PKI).

Research Interests/Skills

- **Artificial Intelligence :** AI, Machine Learning, Deep Learning, Large Language Models.
- **AI Safety and Governance:** AI ethics, AI safety and risk, guardrail evaluation, AI auditing regimes, and compute oversight.
- **AI for Social Good/Computational Social Systems:** Applied AI/ML research work in the interdisciplinary domain of social economic systems, climate, and sustainability.
- **Research Methods:** Quantitative analysis, Exploratory Data Analysis, Experimental Design, Survey Design and Analysis, Causal Inference, Statistical Analysis.

Publications

Sanjeewani Sehgal, Raj Vardhan Tomar, Divya Mehta, and **Sachin Kumar**. Enhancing learning and evaluation: Ai as a catalyst for sustainable education. *Journal of Contemporary Administration,*, 30(2):e250118, 2026.
Abhishek Tiwari, **Sachin Kumar**, Pankaj Tyagi, Shivanshu Siyanwal, and Saiyam Sakhuja. Quantum machine learning models for enhanced weather prediction. In *5th International Conference on AI-ML-Systems (AIMLSystems)*, pages 446–451. IEEE, 2026.
Sachin Kumar. Democratising the ai stack: Technical exploration and reflections. In *DEMOCRATISING AI TOWARDS OPEN, DECENTRALISED AI ECOSYSTEMS - ISBN: 978-93-49061-93-4*, page 41. Observer Research Foundation, 2026.

Chhavi Sharma, **Sachin Kumar**, and Verma Ajit Kumar. Responsible artificial intelligence for ethical and governance challenges in society : Critical reflections from policy landscape, 2026, Springer.

Sanjeewani Sehgal, Divya Mehta, Rishabh Gupta, and **Sachin Kumar**. Navigating the ethical maze of ai in business: A comprehensive analysis. In *Responsible Artificial Intelligence for Ethical and Governance Challenges in Society - Critical Reflections from Policy Landscape*, volume 1. Springer, 2026, Springer.

Sehgal Sanjeewani, Mehta Divya, Gupta Rishabh, and **Sachin Kumar***. Navigating the ethical maze of ai in business: A comprehensive analysis. In *Responsible Artificial Intelligence for Ethical and Governance Challenges in Society:Critical Reflections from Policy Landscape*, Singapore, 2026. Springer Nature Singapore.

Sachin Kumar, Ajit Kumar Verma, and Amna Mirza. Digital revolution, artificial intelligence, and ethical challenges. In *Digital Transformation, Artificial Intelligence and Society: Opportunities and Challenges*, pages 161–177, Singapore, 2024. Springer Nature Singapore.

Sachin Kumar, Ajit Kumar Verma, and Amna Mirza. Way forward—moving towards responsible artificial intelligence. In *Digital Transformation, Artificial Intelligence and Society: Opportunities and Challenges*, pages 179–193, Singapore, 2024. Springer Nature Singapore.

Sachin, Kumar, Ankit Kumar Bhagat, Akash Erugurala, Amna Mirza, Alok Nikhil Jha, and Ajit Kumar Verma. A novel hybrid model of word embedding and deep learning to identify hate and abusive content on social media platform. In *International Conference on Frontiers of Artificial Intelligence, Ethics, and Multidisciplinary Applications*, pages 39–50. Springer, 2023.

Sachin Kumar and Alok Nikhil Jha. Fake news goes viral! determination and analysis of virality of socially relevant events in digital governance. In *Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance*, pages 376–380, 2022, ACM, Nominated for the Best Paper Award, Organised by United Nations University Operating Unit on Policy-Driven Electronic Governance (UNU-EGOV)`Core(A)`.

Sachin Kumar and Zairu Nisha. Does social media feed tell about your mental state? a deep randomised neural network approach. In *International Joint Conference on Neural Networks (IJCNN)*, pages 1–8, 2022, IEEE (Core A).

Sachin Kumar, Zairu Nisha, Saibal K Pal, Jagvinder Singh, and Ompal Singh. Insights and reflections using data analytics approach of covid-19 situation among the indian states and ethical considerations. *International Journal of System Assurance Engineering and Management*, 13(1):131–142, 2022, IF=2.0, Springer.

Sachin Kumar. A Critical and Ethical Perspective on Governance and Policies during COVID-19 Pandemic in India. *Digital Government: Research and Practice*, 3(1):1–10, 2022, ACM.

Sachin, Kumar, Pintu Kumar, Harsh Kumar, Ajit Kumar Verma, and Amna Mirza. Assessment and monitoring of citizen awareness of climate actions through social media: evaluating accountability of government efforts. *International Journal of System Assurance Engineering and Management*, pages 1–11, 2025.

Sachin Kumar. A Novel Hybrid Machine Learning Model for Prediction of CO2 using Socio-Economic and Energy Attributes for Climate Change Monitoring and Mitigation Policies. *Ecological Informatics*, 77:102253, 2023, IF=7.3, Elsevier.

Sachin, Kumar, Prayas Jain, Vaibhav Mehra, and Amna Mirza. Can Social Media Predict Micro Constituency and Macro Election Outcome? Exploration, Insights and Reflections of Digital Political Content Diffusion Using Data Science. *International Journal of System Assurance Engineering and Management*, pages 1–14, 2025, IF=1.8, Springer.

Sakshi Dhall, **Sachin, Kumar**, and Sanjay Kumar. A review on sentiment analysis in low-resource languages focusing on fake news and sarcasm detection as major challenges. *SN Computer Science*, 6(6):693, 2025.

Sachin, Kumar Aarti Goel, Archana Singhal. Assessment of AI Models in Healthcare: Performance Metrics and Applications Across Critical Diseases. *International Journal of System Assurance Engineering and Management*, pages 1–19, 2025, IF=1.6, Springer.

Sachin, Kumar and Prabhat Gupta Pradeep Natrajan. Quantification and Measurement of Relationship Between Movies and Actors for Production Resources Optimisation and Box Office Business Success: Insights and Reflections Using Network Science Approach. *Social Network Analysis and Mining*, 14(1):68, 2024, IF=2.8, Springer.

Sachin, Kumar and Gaurav Dubey Shivam Goel Alok Nikhil Jha Ajit Kumar Verma Kartikey Saran, Yashu Garg. A Novel Influence Quantification Model on Instagram Using Data Science Approach for Targeted Business Advertising and Better Digital Marketing Outcomes. *Social Network Analysis and Mining*, page 71, 2024, IF=2.8, Springer.

Manish Kumar Singh, Jawed Ahmed, Mohammad Afshar Alam, Kamlesh Kumar Raghuvanshi, and **Sachin,**

Kumar. A Comprehensive Review on Automatic Detection of Fake News on Social Media . *Multimedia Tools and Applications*, 83(16):47319–47352, 2024.
Sachin Kumar, Saibal K Pal, and Rampal Singh. A Novel Hybrid Model Based on Particle Swarm Optimisation and Extreme Learning Machine for Short-Term Temperature Prediction Using Ambient Sensors. *Sustainable Cities and Society*, 49:101601, 2019, IF-12.0, Elsevier.
Sachin Kumar, Saibal K Pal, and Ram Pal Singh. Intra elm variants ensemble-based model to predict energy performance in residential buildings. *Sustainable Energy, Grids and Networks*, 16:177–187, 2018, IF=5.899, Elsevier.
Sachin Kumar, Saibal K Pal, and Ram Pal Singh. A novel method based on extreme learning machine to predict heating and cooling load through design and structural attributes. *Energy and Buildings*, 176:275–286, 2018, IF= 7.879, Elsevier.

Selected Research Projects

- PI, Faculty Research Programme Grant, *Do AI Systems Practice What They Preach? Measuring the Gap Between Stated Safety Principles and Actual Agent Behaviour*, Institute of Eminence, Delhi University, 2026-2027, Approx USD $5,580$.
- PI, Faculty Research Programme Grant, *Artificial Intelligence Framework for Carbon Emission Prediction and Hybrid Intelligent Impact Quantification Model Using ML and NLP to Ensure Accountability of Stakeholders for Climate Actions and NetZero Targets*, Institute of Eminence, Delhi University, 2024-2025, Approx USD $5,580$.
- PI, Faculty Research Programme Grant, *Quantification and Pattern Analysis of Digital Discourses to Understand Innovation and Start-Up Ecosystem Using Natural Language Processing and Machine Learning Approaches*, Institute of Eminence, Delhi University, 2023-2024, USD $4,460$.
- PI, Faculty Research Programme Grant, *Assessment of Innovation and Start-Up Ecosystem: A Case Study on Entrepreneurs and Incubators in Tier-1 and Tier-2 Cities*, Institute of Eminence, Delhi University, 2022-2023, Approx $5,580$.
- PI, Faculty Research Programme Grant, *Analysis and Determination of Influence of Users on Social Media Platforms Using Machine Learning*, Institute of Eminence, Delhi University, 2021-2022, USD $1,500$.
- Co-PI, Innovation Project, *Weaving Dreams for Destitute – Night Shelters* funded by Delhi University, 2015-2016, USD $5,580$.

Authored/Edited Books

- **Sachin Kumar**, Ajit Kumar Verma, Saibal K Pal, ***Artificial Intelligence for Business Transformation: Exploration and Strategies for the Digital Age***, *2027, Springer Nature.*
- ***Sachin Kumar***, *Amna Mirza.* ***Digital Empowerment***, *2027, Taylor & Francis.*
- *Chhavi Sharma,* ***Sachin Kumar***, *Ajit Kumar Verma.* ***Responsible Artificial Intelligence for Ethical and Governance Challenges in Society - Critical Reflections from Policy Landscape***, *2026, Springer Nature.*
- ***Sachin Kumar***, ***Artificial Intelligence: Understand, Adapt, Succeed***, *2025, Digital Horizon Media.*
- ***Sachin Kumar***, *Ajit Kumar Verma, Amna Mirza.* ***Digital Transformation, Artificial Intelligence and Society: Opportunities and Challenges***, *2024, Springer Nature****(Awarded as top cited book in Business, Economics, Politics and Law, by Springer)***.
- *Manish Kumar Singh,* ***Sachin Kumar***, *Saibal K Pal.* ***Operating Systems Fundamentals: Concept Building and Problem Solving Approach***, *ISBN:978-93-5573-354-2, 2022, Cengage Publication, Boston, USA.*

Selected Policy Papers/Commentaries/Discussions

- **Sachin Kumar**, *Democratising the AI Stack: Technical Exploration and Reflections*, Democratising AI Towards Open, Decentralised AI Ecosystems, Pages: 41, Observer Research Foundation. ISBN: 978-93-49061-93-4, 2026. https://or-f.org/37465.
- **Sachin Kumar**, *Intersection of Competition Law and Artificial Intelligence*, Internet Governance Forum (IGF), 2024. https://www.youtube.com/watch?v=nqoCmHlq_TE.
- **Sachin Kumar**, *AI Governance in India: Aspirations and Apprehensions*, The Observer Research Foundation, https://www.orfonline.org/research/ai-governance-in-india-aspirations-and-apprehensions.
- Amna Mirza and **Sachin Kumar**, *'LiFE & Industry 4.0: The need for right synergies in Digitalisation and Globalisation 4.0 for Sustainable Development.*, Think20 (T20) is an official Engagement Group of the G20. https://t20ind.org/research/life-industry-4-0/.

Professional Development/Online Courses/Workshops

- **AI Policy Fellowship**, Harvard AI Safety Team, Research Institute in Cambridge, Massachusetts.
- **AI Policy Symposium from Geopolitics to Governance to Growth**, Harvard Kennedy School, 2026, Symposium.
- **Multilevel Modeling**, Harvard University, 2026.
- **AI for Earth and Planetary Sciences**, Harvard University, 2026.
- **Digital Governance and Leadership in the Public Sector**, Harvard Kennedy School, Harvard University, 2025.

Selected Achievements: Conferences/Workshops/Seminars

- **International Seminar:** *Artificial Intelligence for Climate Actions Accountability*, Harvard University USA, 2026.
- **Panelist:** *Can artificial intelligence be truly net positive for the planet?* , Indiaspora's sixth Annual Climate Summit, April 16th/17th,USA, 2026.
- **Fireside Chat:** *Artificial Intelligence For Social Good*, Harvard Graduate School of Education, Harvard University USA, 2026.
- **Top Cited Book Award** for *Digital Transformation, Artificial Intelligence and Society: Opportunities and Challenges*, Springer Nature, 2026.
- **Research Travel Grant**, FAIEMA, National and Kapodistrian University of Athens, Greece, 2023.
- **Nomination for the Best Paper Award:** 15th International Conference on Theory and Practice of Electronic Governance, Organised by United Nations University(UNU-EGOV)Core(A).
- **Research Travel Grant:** *IEEE World Congress on Computational Intelligence 2022(WCCI2022)*, University of Padua, Padua, Italy, 2022, Funded by Department of Science and Technology, GoI.
- **Research Travel Grant** *The International Conference on Extreme Learning Machines (ELM2016)* Singapore, 2016, Funded by University of Delhi.
- **Associate Editor:** *International Journal of System Assurance Engineering and Management*, Springer, 2022 - till date.
- **Organising Chair:** *International Conference on Recent Trends in Engineering, Technology and Business Management*, ICRTETBM2025, ICRTETBM2024, ICRTETBM 2026.
- **Session Chair:** *Machine Learning(SoCProS)*, Indian Institute of Technology Roorkee, UK, India, 24th to 26th Feb 2025.
- **Session Chair:** *Artificial Intelligence/Machine Learning*, International Conference on Recent Trends in Engineering, Technology and Business Management (ICRTETBM 2025), Amity International Business School, India, 2025.
- **Talk Chair:** *Public Health and Satellite Data* at Amity International Business School, India, 2024.
- **Talk Chair:** *Quality 4.0, A data-driven approach for quality management*, By Mr Marcus Sørensen, Head of Quality & Six Sigma, Envases, Denmark, Amity International Business School, India, 2023.
- **Session Chair:** *Software Engineering, International Conference on Recent Trends in Engineering, Technology and Business Management (ICRTETBM 2023)*, Amity University, India, 2023.

- **Expert Panel Member:** *Privacy and Artificial Intelligence*, *International Conference on Artificial Intelligence and International Law*, Campus Law Centre, University of Delhi, Delhi, India, 2022.
- **Presentation:** *A Novel Hybrid Model of Word Embedding and Deep Learning to Identify Hate and Abusive Content on Social Media Platform*, FAIEMA, National and Kapodistrian University of Athens, Greece, 2023.
- **Presentation:** *Does Social Media Feed Tell about Your Mental State? A Deep Randomised Neural Network Approach*, IEEE World Congress on Computational Intelligence 2022(WCCI2022), University of Padua, Italy, 2022.
- **Presentation:** *Smart Home: Accurate Prediction of Energy Consumption with Extreme Learning Machine Variant*, ELM,2016, Springer.
- **Faculty Start-Up Grant:**, University of Delhi, 2015

Selected Invited Lectures/Talks

- **Artificial Intelligence: A New Blended Approach to Legislative Drafting**, Institute of Constitutional and Parliamentary Studies (ICPS), Lok Sabha, Delhi, 22 April 2025,
- **AI for Economic Growth and Innovation**, Workshop on **Harnessing India's AI Power**, Institute of Constitutional and Parliamentary Studies (ICPS), Lok Sabha, Delhi, 19 March 2025.
- Workshop on **Democratizing AI: Towards Open, Decentralized AI Ecosystems**, Observer Research Foundation, Kolkata, 28 Feb 2025.
- **Artificial Intelligence, IoT and Digital Society: Opportunities and Challenges**, International Conference on Diversity, Equity, Inclusion and Belonging (ICDEIB-2024), Amity University London, UK, 2024.
- **Exploring Artificial Intelligence For Social Impact, Education and Learning**, *Workshop on "Harnessing India's AI Power, Human Resource Development Centre, Delhi Public School Society, Delhi NCR, India, 2025*.
- **AI for Economic Growth and Innovation**, *Workshop on "Harnessing India's AI Power, Institute of Constitutional and Parliamentary Studies (ICPS), Indian Parliament, Delhi, 2025*.
- **Democratization Artificial Intelligence Stack**, *Workshop on Democratizing AI: Towards Open, Decentralized AI Ecosystems, Observer Research Foundation, Kolkata, 2025* .
- **Artificial Intelligence, IoT and Digital Society: Opportunities and Challenges**, *International Conference on Diversity, Equity, Inclusion and Belonging (ICDEIB-2024), Amity University London, UK, 2024* .
- **Digital Transformation and Artificial Intelligence for Social Good: Opportunities and Challenges**, *23rd INBUSH ERA World Summit 2023, at Amity International Business School (AIBS), India, 2023* .

Courses Taught

AI and Digital Governance, Computational Social Systems, AI for Social Good, Artificial Intelligence/Machine Learning, Deep Learning, Business Analytics, Data Structure and Design, Introduction to Programming.

Association with Professional Bodies

Member, IEEE, Association for Computing Machinery(ACM)