Nisha Singh Chauhan

Assistant Professor
CSE Department
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Area of Interest

Machine Learning, Deep Learning, Intelligent Transportation Systems, Algorithms, Data Structures.

Education

Ph.D. in Computer Science and Engineering	2024
Indian Institute of Technology, Roorkee	*CGPA: 8.23/10*
M.Tech in Computer Science and Engineering	2019
Indian Institute of Technology, Patna	*CGPA: 8.79/10*
B.Tech in Information Technology	2016
Dr. A.P.J. Abdul Kalam Technical University, Lucknow	*Percentage: 77.46*
Intermediate	2011
Rani Laxmibai Public School, Jhansi (ICSE)	*Percentage: 86.33*
High School	2009
Rani Laxmibai Public School, Jhansi (ICSE)	*Percentage: 84.28*

Research Experience

Indian Institute of Technology, Roorkee |Attention-Influenced Deep Learning Models for Traffic Flow Prediction
{2021-2024}

- Exploring various attention models, their merits and demerits and developing an efficient hybrid model to predict traffic flow on road networks.

  Advisor: **Prof. Neetesh Kumar**, *Associate Professor, Department of CSE*, IIT Roorkee

Indian Institute of Technology, Patna |Community Detection in Dynamic Networks
{2018-2019}

- Finding high quality communities in dynamic network by focusing on on nodes, degree and their neighbors and tracing community structure for every time step by using previous community structure and by making changes in the previous snapshot network and current snapshot network.

  Advisor: **Prof. Abyayananda Maiti**, *Assistant Professor, Department of CSE*, IIT Patna

Teaching Experience

Assistant Professor |National Institute of Technology, Delhi {May 2025 - Present}

Assistant Professor |Thapar Institute of Engineering & Technology {July 2024 - April 2025}

Guest Faculty |Rajkiya Engineering College, Azamgarh {July 2019 - May 2020}

Awards / Scholarships / Academic Achievements

- Received Student Travel Grant to attend CODS-COMAD 2023 at IIT Bombay
- Received Student Travel Grant to attend IndoML 2022 at IIT Gandhinagar
- Received IIT Roorkee Institute Research Fellowship from 2021
- Qualified UGC NET (JRF) exam in Computer Science and Applications discipline held in JUNE 2020
- Qualified GATE exam in Computer Science and Information discipline held in 2016 & 2017
- Reviewer for research articles of IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Knowledge and Data Discovery, IEEE Conference, IEEE International Conference on Electrical, Electronics, Communication, and Computers (ELEXCOM'23), etc.
- Technical Programme Committee member in IEEE International Conference on Electrical, Electronics, Communication and Computers (ELEXCOM'23), Member of the Program Committee (PC) for the Research Track of 31st International Conference on Neural Information Processing ICONIP 2024

Positions of Responsibility

Student Coordinator | Google and Indian Institute of Technology, Roorkee

- I served as a Student Coordinator and Teaching Assistant in the exploreCSR 2023-2024 program, a Google Research-sponsored mentorship program

Research Publications

Journals

1. Nisha Singh Chauhan, Neetesh Kumar, and Azim Eskandarian, "A Novel Confined Attention Mechanism Driven Bi-GRU Model for Traffic Flow Prediction", in IEEE Transactions on Intelligent Transportation Systems, 2024, [**SCI, Q1, IF: 7.9**]
2. Nisha Singh Chauhan and Neetesh Kumar, "Novel Confined Attention enabled Hierarchical Bi-LSTM and Bi-GRU Fusion: A Multi-scale Traffic Flow Prediction Application", in IEEE Transactions on Computational Social Systems, 2024, [**SCI, Q1, IF: 4.5**]
3. Nisha Singh Chauhan and Neetesh Kumar, "CAM-RNN: Confined Attention Mechanism enabled RNN Framework to Improve Traffic Flow Prediction", in Elsevier - Engineering Applications of Artificial Intelligence, 2024, [**SCI, Q1, IF: 7.5**]

Conferences

1. Nisha Singh Chauhan and Neetesh Kumar, "Traffic flow forecasting using attention enabled Bi-LSTM and GRU hybrid model", in *International Conference on Neural Information Processing (pp. 505-517). Singapore: Springer Nature Singapore, 2022.* [**CORE-B, ERA-A**]
2. Anuj Sachan, Nisha Singh Chauhan, Neetesh Kumar, "Congestion Minimization using Fog-deployed DRL-Agent Feedback enabled Traffic Light Cooperative Framework", in *IEEE/ACM 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGrid), IEEE, 2023.* [**CORE-B**]
3. Anuj Sachan, Nisha Singh Chauhan, Neetesh Kumar, "Real-time Data-driven Smart Traffic Light Co-operative Framework for E-SIOV Mobility Management", in *2024 IEEE 100th Vehicular Technology Conference (VTC2024-Fall).* [**CORE-B**]
4. Mohammed Swaned, Sajid Javid, Shreyali Humaney, Anuj Sachan, Nisha Singh Chauhan, and Neetesh Kumar, "Enhancing Traffic Management Through Advanced Vehicle Detection for Congestion Prevention." in *the Sixth IEEE MASS Workshop on Smart Living with IoT, Cloud, and Edge Computing 2024 in conjunction with 21th International Conference on Mobile Ad-Hoc and Smart Systems (MASS-2024)* [**CORE-B, Qualis-B1**].

Extra Curricular skills

- Gold Medal in Institute Colours Trophy 2024 (Badminton)
- Silver Medal in Institute Open Badminton Competition (2023)
- Bronze Medal in Inter Bhawan Badminton Competition (2023)
- Wellness Secretary, Kasturba Bhawan, IIT Roorkee
- Sports Secretary(Girls) of REC, Ambedkar Nagar (2023)
- Secured 2nd position in zonal round of ROBOTRYST-2015
- Executive of Pragati (Forum), which provides career counseling to the students (2013)

References

- **Prof. Neetesh Kumar** Associate Professor in the Department of Computer Science & Engineering, IIT Roorkee, Uttrakhand, India-247667, Off. Phone: +91-1332-284977, Mob: +91-9015695894, Email: neetesh@cs.iitr.ac.in, neeteshiitr@gmail.com.
- **Prof. Abyayananda Maiti** Assistant Professor in the Department of Computer Science & Engineering, IIT Patna, Bihar, India-801106, Off. Phone: +91-612-302 8130, Mob: +91-7070811668, Email: abyaym@iitp.ac.in.
- **Prof. Sumantra Dutta Roy** Professor, Department of Electrical Engineering, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi - 110 016, INDIA, Email: sumantra@ee.iitd.ac.in.
- **Prof. Dharmendra Singh** Director, Indian Institute of Information Technology Vadodara (IIIT V), Gujarat, India-382028, Email: dharmfec@ece.iitr.ac.in.