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Rajiv Misra

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Research Areas

Distributed Systems, Cloud Computing, Big Data Computing, Consensus, Blockchain, Cloud IoT Edge Computing, Adhoc Networks and Sensor Networks

Students

Sr. No.	Photo	Area of Research	Deg.
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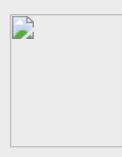
Anurag Choubey

Blockchain-enabled Electric Vehicle Charging Network, NS3, Deep Learning



Rohit Kumar Gupta

SDN-NFV, 5G & Beyond, 6G Networks, Network Slicing, UAV Communications, Multi-access Edge Computing (MEC), AI, Machine Learning, Deep Learning, Reinforcement Learning, Deep-Q Networks (DQN).



Amit Ranjan

Deep Learning, Machine Learning

4		Shivendu Mishra IoT, smart city	Part-time
5		Manoj Kumar Balwant Machine Learning For big data	Part-time
6		Nelson Sharma Deep Learning, Edge and Fog Computing	
7		Aswini Ghosh 5G Network	Part-time
8		Praveen Kumar AI-based 6G network slicing	
9		Sudhir Kumar AI-based 6G network slicing	On-going
10		Vaneet Kour Cloud Computing, deep learning, VM consolidation	
11		Shivani Tripathi	part-time
12		Priyadarshni	part-time
13		Anil Verma	

14		Rupesh Kumar Sah	
Former Students	Sr. No.	Photo	Area of Research
	1		Rohit Kumar Gupta
	2		Amit Ranjan
	3		Abhijit Kumar
	4		Sourajit Behera
	5		Assistant Professor, IIT Jodhpur, Rajasthan, India Debasis Das
	6		Assistant Professor, MNIT, Allahabad, India Shailendra Shukla
	7		Institute of Infrastructure Technology Research and Management (IITRAM) Ahmedabad, India Ram Narayan Yadav
	8		Assistant Professor, Dept. of CSE, IIT (BHU) Varanasi, India Ajay Pratap
	9		Assistant Professor, CSED, Thapar Institute of Engineering and Technology, India Yashwant Singh Patel

Current Sponsored Projects	Sr. No.	Title	Principal Investigator	Co-Principal Investigator	Duration	Sponsoring Agency	Cost	Status
	1	Creating Augmented Reality for Restoration/ Reconstruction of Cultural Heritage Site- Nalanda for immersive experience	Prof. Rajiv Misra					
	2	AI based 6G Network Slicing for multi-UAV prototype	Dr Rajiv Misra					
	3	Microsoft AI for Health COVID-19 Grant	Dr. Rajiv Misra					
	4	Low-cost Energy Efficient Cloud for Cyber-Physical Disaster Management Systems	Dr. Rajiv Misra					
	5	Vehicular Sensor and Mesh Networks based Future ITS	Dr. Rajiv Misra					
	6	Distributed EV charge scheduling and consensus based control for EV charging network	Indian PI: Dr. Rajiv Misra, IIT Patna German PI: Prof. Dr.-Ing. Axel Sikora, Offenburg University, Germany					
Member of Professional bodies	IEEE Senior							
Books	<ul style="list-style-type: none"> ○ Efficient and Effective Algorithm for Wireless Networks D Das, M Rajiv Journal of Data communication, networks, 1-92 2014. ○ Cellular Automata Based on Block Cipher and Road Traffic Model D Das, M Rajiv Cellular Automata Based on Block Cipher and Road Traffic Model 2013. ○ 							
Publications / Journals	<p>Journal Publications:</p> <ul style="list-style-type: none"> ○ Shivendu Mishra, Anurag Choubey, Sri Vaibhav Devarasetty, Nelson Sharma, Rajiv Misra. "An Innovative Multi-Head Attention Model with BiGRU for Real-Time Electric Vehicle Charging Management through Deep Reinforcement Learning" Cluster Computing, Springer, Accepted SCIE- Impact factor: 4.4 ○ Choubey, A., Sikarwar, A., Asoba, S., & Misra, R. (2024). Towards an IPFS-based highly scalable blockchain for PEV charging and achieve near super-stability in a V2V environment. Cluster Computing, 1-42. ○ Choubey, A., Mishra, S., Behera, S., Misra, R., Pandey, A. K., & Pandey, D. (2024). Smart Homes, Smart Choices: Using Big Data to Boost Energy Efficiency and Environmental Sustainability. Electric Power Components and Systems, 1-19. ○ Kumar, A., Misra, R., Singh, T. N., & Dhiman, G. (2023). APO-AN feature selection based Glorot Init Optimal TransCNN landslide detection from multi source satellite imagery. Multimedia Tools and Applications, 1-38. 							

- Kumar, A., Singh, V. K., **Misra, R.**, Singh, T. N., & Choudhury, T. (2023). Machine Learning and IoT-Based Approaches to Detect and Predict Rainfall-Triggered Landslides. *Revue d'Intelligence Artificielle*, 37(5).
- Aswini, Nelson, **Rajiv Misra**, Sdas, "Deep Meta Q-learning based Multi-Task Offloading in Edge-Cloud Systems", *IEEE Transactions on Mobile Computing*, 2023 (accepted)
- Sourajit Behera, **Rajiv Misra**, "A multi-model data-fusion based deep transfer learning for improved remaining useful life estimation for IIOT based systems". *Eng. Appl. Artif. Intell.* 119: 105712 (2023)
- Amit Ranjan, Hritik Kumar, Deepshikha Kumari, Archit Anand, **Rajiv Misra**, "Molecule generation toward target protein (SARS-CoV-2) using reinforcement learning-based graph neural network via knowledge graph". *Netw. Model. Anal. Health Informatics Bioinform.* 12(1): 13 (2023)
- Rohit Kumar Gupta, Saubhik Kumar, **Rajiv Misra**, "Resource allocation for UAV-assisted 5G mMTC slicing networks using deep reinforcement learning". *Telecommun. Syst.* 82(1): 141-159 (2023)
- Rohit Kumar Gupta, Shashwat Mahajan, **Rajiv Misra**, "Resource orchestration in network slicing using GAN-based distributional deep Q-network for industrial applications". *J. Supercomput.* 79(5): 5109-5138 (2023)
- Amit Ranjan, Shivansh Shukla, Deepanjan Datta, **Rajiv Misra**, "Generating novel molecule for target protein (SARS-CoV-2) using drug-target interaction based on graph neural network". *Netw. Model. Anal. Health Informatics Bioinform.* 11(1): 6 (2022)
- Yashwant Singh Patel, Rishabh Jaiswal, **Rajiv Misra**, "Deep learning-based multivariate resource utilization prediction for hotspots and coldspots mitigation in green cloud data centers". *J. Supercomput.* 78(4): 5806-5855 (2022)
- Nelson Sharma, Aswini Ghosh, **Rajiv Misra**, Supratik Mukhopadhyay, Gokarna Sharma, "Collisionless Pattern Discovery in Robot Swarms Using Deep Reinforcement Learning." *CoRR abs/2209.09865* (2022)
- Debasis Das, **Rajiv Misra**, EASBVN: efficient approximation scheme for broadcasting in vehicular networks. *Wireless Networks* 27(1), 339-349, 2021 (Springer)
- Ajay Pratap , **Rajiv Misra** , Sajal K. Das, Graph-based Resource Allocation Algorithms for Heterogeneous 5G Networks, *IEEE Transactions on Mobile Computing*, 20(2): 603-619 (2021)
- Yashwant Patel, Aditi Page, Manvi Nagdev, Anurag Choubey, **Rajiv Misra**, Sajal Das, On Demand Clock Synchronization for Live VM Migration in Distributed Cloud Data Centers, *Journal of Parallel and Distributed Computing*, 138: 15-31(2020) (Springer)
- S Behera, **R Misra**, A Sillitti, Multiscale deep bidirectional gated recurrent neural networks based prognostic method for complex non-linear degradation systems, *Information Sciences* 554, 120-144 (2021) Elsevier
- YS Patel, A Baheti, **R Misra**, Interval graph multi-coloring-based resource reservation for energy-efficient containerized cloud data centers, *The Journal of Supercomputing*, 1-49, (2020) Springer
- [Ram Narayan Yadav](#), **Rajiv Misra**: Approximating Common Control Channel Problem in Cognitive Radio Networks. *IEEE Systems Journal* 13(1): 301-312 (2019)
- [Ram Narayan Yadav](#), **Rajiv Misra**: Approximating the largest connected topology in cognitive radio networks. *Computer Networks* 142: 49-63 (2018)
- [Ram Narayan Yadav](#), **Rajiv Misra**, [Divya Saini](#) : Energy aware cluster based routing protocol over distributed cognitive radio sensor network. *Computer Communications* 129: 54-66 (2018)
- [Debasis Das](#), **Rajiv Misra**: IntersectionCast: approximation algorithm for multi-directional broadcast storm in VANETs. *IJCNDs* 20(1): 16-35 (2018)
- [Debasis Das](#), **Rajiv Misra**: Improvised dynamic network connectivity model for Vehicular Ad-Hoc Networks (VANETs). *J. Network and Computer Applications* 122: 107-114 (2018)
- [Ajay Pratap](#) , [Rishabh Singhal](#), **Rajiv Misra**, [Sajal K. Das](#) : Distributed Randomized k-Clustering Based PCID Assignment for Ultra-Dense Femtocellular Networks. *IEEE Trans. Parallel Distrib. Syst.* 29(6): 1247-1260 (2018)
- [Ajay Pratap](#) , **Rajiv Misra**: Random Graph Coloring-Based Resource Allocation for Achieving User Level Fairness in Femtocellular LTE-A Networks. *Wireless Personal Communications* 98(2): 1975-1995 (2018)
- RamNarayan, Sourav Bhagat, and **Rajiv Misra** "Performance Analysis of Cognitive Smart-Grid Communication System using Markov Chain", *Ad Hoc Networks*, Volume 65, October 2017, Pages 38-54(Elsevier).

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- Ram Narayan Yadav, **Rajiv Misra**, "On k-Channel Connectivity in Cognitive Radio Networks through Channel Assignment", International Journal of Electronics and Communication, Volume 77, July 2017, Pages 118-129. (Elsevier)
- Shailendra Shukla, **Rajiv Misra**, and Abhishek Agarwal. "Virtual coordinate system using dominating set for GPS-free adhoc networks." Annals of Telecommunications 72.3-4 (2017): 199–208. (Springer)
- Ajay Pratap, **Rajiv Misra**, Utkarsh Gupta, "Randomized Graph Coloring Algorithm for Physical Cell ID Assignment in LTE-A Femtocellular Networks". Wireless Personal Communications 91(3): 1213-1235 (2016)(Springer)
- Debasis Das, **Rajiv Misra**, "Caching algorithm for fast handoff using AP graph with multiple vehicles for VANETs". IJCNDS 14(3): 219–236 (2015)(Inderscience)
- Approximating geographic routing using coverage tree heuristics for wireless network D Das, **R Misra**, A Raj Wireless Networks, 2014(accepted)
- Lightweight Localization Using Trilateration for Sensor Networks **R Misra**, S Shukla, V Chandel International Journal of Wireless Information Networks 21 (2), 89–100 2014.
- Impact of Bloom Filter on Infection Rate in Epidemic Forwarding for ICNs S Shukla, N Kumar, **R Misra** Wireless personal communications 75 (4), 2165–2180 2014.
- Caching Algorithm for Fast Handoff using AP Graph with Multiple Vehicles for VANETs D Das, **R Misra** International Journal of Communication Networks and Distributed Systems 2015
- Efficient clusterhead rotation via domatic partition in self -organizing sensor networks **R Misra**, C Mandal Wireless Communications and Mobile Computing 9 (8), 1040–1058 2009
- Minimum connected dominating set using a collaborative cover heuristic for ad hoc sensor networks **R Misra**, C Mandal IEEE Transactions on Parallel and Distributed Systems, 21 (3), 2010
- Rotation of cds via connected domatic partition in ad hoc sensor networks **R Misra**, C Mandal IEEE Transactions on Mobile Computing, 8 (4), 488–499 2009
- Angle Based Double Boundary Detection in Wireless Sensor Networks S Shukla, **R Misra** Journal of Networks 9 (3), 612–619 2014
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Conference Publications:

- Tripathi, Shivani, Praveen Kumar, Priyadarshni Gupta, **Rajiv Misra**, and T. N. Singh. ""Workload Shifting Based on Low Carbon Intensity Periods: A Framework for Reducing Carbon Emissions in Cloud Computing." In 2023 IEEE International Conference on Big Data (BigData), pp. 3387–3395. IEEE, 2023.
- Kumar, Praveen, Shivani Tripathi, and **Rajiv Misra**. ""Proximal Policy Optimization based computations offloading for delay optimization in UAV-assisted mobile edge computing." In 2023 IEEE International Conference on Big Data (BigData), pp. 3355–3364. IEEE, 2023
- Shivendu Mishra and **Rajiv Misra** "Delay Analysis for P2P Systems Using LPWAN. In Misra R., Kesswani N., Rajarajan M., Bharadwaj V., Patel A. (eds) Internet of Things and Connected Technologies. ICIoTCT 2020. Advances in Intelligent Systems and Computing, vol 1382. Springer, Cham (2021). https://doi.org/10.1007/978-3-030-76736-5_10
- Verma, A., Dhankhar, H., **Misra, R.**, Singh, T. N., & Dhakal, O. P. (2023, December). Analysis and Forecasting of Carbon Emission in SAARC Countries using Attention-based LSTM. In 2023 IEEE International Conference on Big Data (BigData) (pp. 3396–3404). IEEE.
- Anurag Choubey, **Sourajit Behera**, **Yashwant Singh Patel**, **Karanam Mahidhar**, **Rajiv Misra**: EnergyTradingRank Algorithm for Truthful Auctions among EVs via Blockchain Analytics of Large Scale Transaction Graphs. **COMSNETS 2019**: 1-6
- **Rishabh Singhal**, **Ajay Pratap** , **Rajiv Misra**, **Sajal K. Das** : Factor Graph-based Message Passing Technique for Distributed Resource Allocation in 5G Networks. **COMSNETS 2019**: 359-366
- **Sourajit Behera**, **Anurag Choubey**, **Chandresh S. Kanani**, **Yashwant Singh Patel**, **Rajiv Misra**, **Alberto Sillitti**: Ensemble trees learning based improved predictive maintenance using IIoT for turbofan engines. **SAC 2019** : 842-850
- **Sourajit Behera**, **Rajiv Misra**: SmartPeak: Peak Shaving and Ambient Analysis For Energy Efficiency in Electrical Smart Grid. **AICCC 2018**: 157–165
- **Abhinav Ralhan**, **Ram Narayan Yadav**, **Rajiv Misra**: Minimum Interference Topology Control in Cognitive Radio Networks through Channel Assignment. **ICACCI 2018**: 1418–1423

- **Yashwant Singh Patel, Rajiv Misra:**
Distributed Algorithm for Balanced VM Placement for Heterogeneous Cloud Data Centers.
ICDCN 2018: 51:1-51:4
- **Ajay Pratap , Rajiv Misra, Sajal K. Das :**
Resource Allocation to Maximize Fairness and Minimize Interference for Maximum Spectrum Reuse in 5G Cellular Networks.**WOWMOM 2018:** 1-9
- Firefly inspired Improved Distributed Proximity Algorithm for D2D Communication Ajay Pratap, **Rajiv Misra** IPDPS 2015 (NIDISC 2015) Hyderabad May 2015
- Road Congestion Sensing via Crowdsourcing and MapReduce Ayush Jain, Saswat Raj, Harshit, **Rajiv Misra**, B. M. Baveja ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN) April 2015, USA
- Performance comparison of parallel graph coloring algorithms on BSP model using hadoop NM Gandhi, **R Misra** International Conference on Computing, Networking and Communications (ICNC), 2015, USA
- Opportunistic Spectrum Access in CR Network in Licensed and Unlicensed Channels RN Yadav, **R Misra**, U Gupta, S Bhagat Proceedings of the 2015 International Conference on Distributed Computing(ICDCN 2015), Goa
- 2-Hop Neighbour Knowledge-based Clustering in CRN under Opportunistic Channel Access **Rajiv Misra**, RN Yadav, Saurav Bhagat, Vinod Dosapatty, International Conference on Telecommunication Technology & Management(ICTTM-2015), IIT Delhi, India April 2015
- Smartphone sensing for large data set collection of potholes S Raj, A Jain, **R Misra** Proceeding of the 11th annual international conference on Mobile systems(Mobisys) 2013(Taiwan)
- Parallel K-Spanning Tree based on MapReduce Abhinav Kohar and **Rajiv Misra** . (SRS) HiPC 2013 Bangalore
- Improvised k-hop neighbourhood knowledge based routing in wireless sensor networks D Das, **R Misra** 2nd International Conference Advanced Computing, Networking and Security (ADCONS), 2013
- Proactive Approach based Fast Handoff Algorithm for VANETs D Das, **R Misra** IEEE Annual India Conference (INDICON), 2013
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- Efficient vehicle to vehicle communication protocol for VANETs D Das, **R Misra** Recent Advances in Engineering and Computational Sciences (RAECS), 2014.
- Improvised geographic scheme for greedy perimeter stateless routing D Das, **R Misra** IEEE Recent Advances in Intelligent Computational Systems (RAICS), 2013.
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- Improvised Geographic Scheme for Greedy Perimeter Stateless Routing D Das, **M Rajiv** IEEE Recent Advances in Intelligent Computational Systems (RAICS), 2013.
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- Vehicular Intersection Traffic Control System Based on Cellular Automata D Das, **R Misra** 2nd National Conference on Intelligent Transportation System(ITS), 2011.
- Performance comparison of AODV/DSR on-demand routing protocols for adhoc networks in constrained situation **R Misra**, CR Mandal IEEE International Conference on Personal Wireless Communications, 2005. ICPWC 2005
- 19. Ant-aggregation: ant colony algorithm for optimal data aggregation in wireless sensor networks **R Misra**, C Mandal IFIP International Conference on Wireless and Optical Communications Networks, 2006...
- On self-stabilization of multi point relays for connected dominating set in adhoc networks **R Misra** IEEE Region 10 Conference TENCON 2009.
- Clusterhead rotation via domatic partition in self-organizing sensor networks **R Misra**, C Mandal Communication Systems Software and Middleware, 2007. COMSWARE 2007
- Self-healing for self-organizing cluster sensor networks **R Misra**, C Mandal Annual IEEE India Conference, 2006
- Improvised k-hop neighbourhood knowledge based routing in wireless sensor networks D Das, **R Misra** 2nd International Conference on Advanced Computing, Networking and Security

(ADCONS), 2013

- Location tracking of fast-paced mobile entity using CDS for VANETs **R Misra**, BM Baveja IEEE 7th International Conference on Mobile Adhoc and Sensor Systems (MASS), 2010.
- Epidemic disease propagation detection algorithm using MapReduce for realistic social contact networks R Ranjan, **R Misra** International Conference on High Performance Computing and Applications (ICHPCA), 2014.
- Multipath routing protocols in Cognitive Radio Networks RN Yadav, **R Misra** Annual IEEE India Conference (INDICON), 2014.
- QoS based opportunistic channel scheduling in cognitive radio networks U Gupta, RN Yadav, **R Misra** IEEE Region 10 Conference TENCON 2014.
- Parallel Processing Concept Based Vehicular Bridge Traffic Problem D Das, **R Misra** International Conference on Advanced Computing, Networking and Informatics (ICACNI - 2014).
- Lightweight Software Model for Target Localization in Wireless Sensor Networks. **R Misra**, S Shukla, V Chandel DCOSS, 301-303 2013.
- Vehicular communication via compass labeling **R Misra**, S Shukla, BM Baveja Consumer Communications and Networking Conference (CCNC), 2011 IEEE, 472-476, 2011.
- Social Network Aware Routing for Delay Tolerant Networks **R Misra**, S Shukla
- A Parallel AES Encryption Algorithm Based on PCA D Das, **R Misra** International Conference on Parallel, Distributed Computing Technologies and Applications, PDCTA 2011, Tirunelveli, India.
- K Bipartite Partitioning Algorithm for Channel Allocation Problem in Wireless Mesh Networks **R Misra**, A Shukla International Conference on Networks and Communications (NETCOM'09), 2009.
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- An Analysis of Different TCP Variants in Cognitive Radio Networks RN Yadav, **R Misra** International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery (CyberC), 2014.
- A Localized Self-Configuring Scheme for Controlled Mobility in Self - Organizing Sensor Network. **Rajiv Misra** and Chittaranjan Mandal, In Proc. of 5th Asian International Mobile Computing Conference(AMOC 2007), Kolkata, Jan 2007, Tata-McGraw Hill Press.
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- **Rajiv Misra** and Chittaranjan Mandal, Clusterhead Rotation via Domatic Partition in Self-Organizing Sensor Networks, In Proc of IEEE/ACM COMSWARE 2007 Bangalore, Jan 2007, IEEE Press. (**Best Paper Award in Sensor ware 2007 and Prize of \$500**).
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