Dr. Rupendra Pratap Singh Hada

PhD, Department of CSE,
Indian Institute of Technology Indore, India, 452020

+918770444377 roodra248@gmail.com rupendra-hada
rupendra248 rupendra248.github.io

Accomplished Doctoral Researcher with a proven track record in **Wireless Sensor Networks (WSN)**, **Machine Learning**, **IoT**, and **Edge Computing**. Developed high-impact localization algorithms that improved accuracy by 95% and reduced energy consumption by 60% in real-world environments. Expertise in AI-driven optimization, enhancing IoT solutions for environmental monitoring, smart systems, and healthcare.

Employment History

2023 – 2025 **Senior Research Fellow,** Indian Institute of Technology, Indore.

2024 **Visiting PhD Researcher,** Western Norway Research Institute, Norway.

2019 – 2020 **Assistant Professor,** Computer Science & Engineering, SD Bansal College of Science & Technology, Indore.

Education

2021 – 2025 **Ph.D., Computer Science & Engineering** Indian Institute of Technology Indore, India.
Advisor: Prof. Dr. Abhishek Srivastava, CGPA: 9.0
Thesis title: *Energy Preservation in Wireless Sensor Networks.*

2024 **Visiting Ph.D. Researcher** Western Norway Research Institute, Norway.
Advisor: Prof. Dr. Rajendra Akerkar, CGPA: 9.0
Work: *CMA-ES-SVR based localisation in indoor environments.*

2016 – 2019 **M.E. Computer Science** SGSITS Indore.
Advisor: Prof. DA Mehta, CGPA: 7.46
Thesis title: *Parallel Priority Based Scheduling on Asymmetric Multicore Processors.*

2011 – 2015 **B.E. Computer Science** RGPV Bhopal.
CGPA: 7.86 Project: *Advance school management system.*

Research Publications

Journal Articles

1. **R. P. S. Hada** and A. Srivastava, "A hybrid approach for localisation of sensor nodes in remote locations," *ACM Transactions on Sensor Networks*, vol. 21, no. 2, pp. 1–33, Funded by **Defries-Bajpai Foundation, USA**, 2025.
- Developed a hybrid localisation algorithm for sensor nodes in remote locations for outdoor environments, reducing localisation error and number of energy-intensive nodes up to 1m, and 95%, respectively, improving the overall reliability of WSN in harsh environments. DOI: https://doi.org/10.1145/3715914.

2. **R. P. S. Hada** and A. Srivastava, "Dynamic cluster head selection in wsn," *ACM Transactions on Embedded Computing Systems*, vol. 23, no. 4, 64:1–64:27, Funded by **Defries-Bajpai Foundation, USA**, 2024.

- Developed a dynamic clustering and cluster head selection method for routing in WSN using various unsupervised machine learning algorithms and Grid search. The proposed method increases the nodes used from 22% to 163% compared to the state-of-the-art methods. DOI: https://doi.org/10.1145/3665867.

3 **R. P. S. Hada**, U. Aggarwal, and A. Srivastava, "A study and analysis of a new hybrid approach for localization in wireless sensor networks," *Journal of Web Engineering*, vol. 22, no. 2, pp. 279–302, 2023.
- A hybrid outdoor localisation method is proposed using an advanced Random Forest and a multi-iteration algorithm. The method increases the localisation accuracy up to 90% compared to state-of-the-art methods. The localisation algorithm is useful in harsh monitoring environments like wildfire detection. DOI: https://doi.org/10.13052/jwe1540-9589.2224.

4 **R. P. S. Hada** and A. Srivastava, "Priority based scheduler for asymmetric multi-core edge computing," *Journal of Web Engineering*, vol. 22, no. 6, pp. 871–888, 2023.
- A novel job scheduler is designed by altering the existing Linux kernel for Asymmetric multi-core Edge computing devices. The proposed scheduler outperforms the current one, Linux scheduler (for high & mid priority jobs) up to 16%. DOI: https://doi.org/10.13052/jwe1540-9589.2262.

5 S. Chouhan and **R. P. S. Hada**, "A product recommendation system for solving the cold start problem," *Int J Next-Gener Comput*, vol. 12, 2021.
- Product recommendation system is developed for new users for e-commerce sites. The proposed model uses web logs of the browser and combines them with data mining and machine learning techniques for the recommendations. DOI: https://doi.org/10.47164/ijngc.v12i4.312.

6 **R. P. S. Hada**, M. Jain, R. Akerkar, and A. Srivastava, "Cma-es-svr based localisation in indoor environments," *ACM Transactions on Internet Technology*, Funded by **INTPART DTRF** project that has received funding from the **Research Council of Norway** under grant agreement No. 309448, ***(Under Review)***.
- A support regression-based indoor localisation method is proposed, where the parameters are optimised using an advanced optimisation method (CMA-ES). The method is highly useful for finding the positions of kids, pets, and patients having dementia, and is accurate up to centimetre level in indoor environments.

Conference Proceedings

1 **R. P. S. Hada** and A. Srivastava, "A novel priority-based scheduler for asymmetric multi-core edge computing," in *International Conference on Web Engineering*, Springer, 2023, pp. 7–18. DOI: https://doi.org/10.1007/978-3-031-50385-6_1.

Skills

Languages	Strong reading, writing and speaking competencies in English and Hindi.
Programming Languages	C, CPP, Python, R, SQL, HTML/CSS.
Tools & Frameworks	MATLAB, Arduino IDE, TensorFlow, PyTorch, Git, Docker.
Research Skills	Machine Learning, Artificial Intelligence, Sensor Networks, Algorithms.
Misc.	Academic research, teaching, training, consultation, LaTeX typesetting and publishing.

Miscellaneous Experience

Teaching Responsibilities

Spring-2025 **Service-oriented Systems, CS-416/616**, Teaching Assistant, IIT Indore. Contributed to project distribution & evaluation, labs, and guided 96 students in their final semester projects.

Miscellaneous Experience (continued)

2022-2024 **Computer Programming, CS-103**, Teaching Assistant, IIT Indore. Conducted lab sessions and evaluations for programming languages C/C++ for 450+ students. Helped them learn the basic programming & OOP concepts.

Fall-2021 **Advanced Algorithms, CS-411/611**, Teaching Assistant, IIT Indore. Contributed to lab sessions, tutorials, and project work for a class of 90+ students in the last semester of the Bachelor's and the first semester of Master's and PhD students.

Fall-2019 **Data Structures & Algorithms, CS-303**, Assistant Professor, SDBCT Indore. Took full responsibility for designing lectures, tutorials, lab sessions, and evaluations for 55+ students.

2018-2019 **Computer Networks, CO34007**, Teaching Assistant, SGSITS Indore. Contributed to lab sessions and evaluations, guiding students to complete basic networking-related projects.

Awards and Achievements

2020 **Junior Research Fellowship**, University Grants Commission (Top 1% of applicants).

Graduate Aptitude Test in Engineering (GATE), IIT Delhi.

2019 **National Eligibility Test**, University Grants Commission.

Graduate Aptitude Test in Engineering (GATE), IIT Madras.

2016 **Graduate Aptitude Test in Engineering (GATE)**, IISc, Bangalore.

2011 & 2010 **National in Table Tennis**, NVS.

Services & Outreach

March 2024 **Overall Co-ordinator**, Symposium 2.0 at IIT Indore. Organised a symposium on cutting-edge trends and technologies in Computer Science & Engineering, benefiting over 150 students and faculty members from other universities.

2023 – 2025 **Head Co-ordinator**, CSE Events & Outreach, IIT Indore. Coordinated over 20 events, including symposia, seminars, quizzes, activities, career guidance sessions, and movie screenings.

2013 – · · · **Coordinated community-driven health** initiatives including blood donation drives, leading to a 20% increase in donor participation and raising awareness on social causes.

2014 – · · · **Led education and skill development programs** through an NGO in rural Madhya Pradesh, impacting over 500 students in underserved areas by fostering sustainable growth in health, education, and vocational training.

References

Dr. Abhishek Srivastava
Professor & Dean of Faculty Affairs
Indian Institute of Technology (IIT),
Indore, India.
asrivastava@iiti.ac.in

Dr. Ankit Kumar Jain
Assistant Professor
Symbiosis University of Applied Sciences,
Indore, India.
ankitjain031288@gmail.com

Dr. Ranveer Singh
Assistant Professor & Head of the Department
Indian Institute of Technology (IIT),
Indore, India.
ranveer@iiti.ac.in