

# Dr. Rupendra Pratap Singh Hada

PhD, Department of Computer Science & Engineering,  
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rupendra-hada



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- 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.  
Advisor: Prof. Dr. Rajendra Akerkar,  
Work: *CMA-ES-SVR based localisation in indoor environments*.
- 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*.
- 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: *Intrusion detection using IoT devices*.


## Research Publications

### Journal Articles






- 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>.
- 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](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	 <b>Service-oriented Systems, CS-416/616</b> , Teaching Assistant, IIT Indore. Contributed to project distribution & evaluation, labs, and guided 96 students in their final semester projects.
2022-2024	 <b>Computer Programming, CS-103</b> , 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.





## Miscellaneous Experience (continued)

- 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

**Prof. Dr. Abhishek Srivastava**  
Professor & Dean of Faculty Affairs  
Indian Institute of Technology (IIT),  
Indore, India.  
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**Dr. Ankit Kumar Jain**  
Assistant Professor  
Symbiosis University of Applied Sciences,  
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**Dr. Ranveer Singh**  
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