

Dr. Rupendra Pratap Singh Hada

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in rupendra-hada

PhD graduate in Computer Science and Engineering with research expertise spanning Wireless Sensor Networks, the Internet of Things, Edge Computing, Wireless Communication, and Machine Learning. Experienced in designing, implementing, and evaluating data-driven and optimisation-based algorithms for resource-constrained and distributed systems. Author of multiple ACM journal publications and contributor to internationally funded research projects involving real-world deployments, experimental validation, and collaborative research.

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.
- Proposed an energy-efficient hybrid localisation framework for outdoor WSNs, validated on realistic deployment scenarios. 🌐 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.
- Designed ML-assisted dynamic clustering and CH selection to improve network lifetime and node utilisation. 🌐 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.
- Developed a hybrid RF-based outdoor localisation approach achieving improved accuracy in harsh monitoring environments. 🌐 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.
- Proposed a priority-aware scheduling mechanism for asymmetric multicore edge devices, improving execution efficiency. 🌐 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.
- Developed a cold-start recommendation framework using web logs and machine learning techniques. 🌐 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**).
- Introduced CMA-ES-optimized SVR for high-precision indoor localization in smart healthcare and monitoring applications.

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.

Research Interests

- Machine learning and evolutionary optimisation for edge intelligence.
- Energy-efficient localisation and routing in WSN and distributed systems.
- Federated and distributed learning for resource-constrained and edge-based systems.

Research Experience Highlights

- Designed and deployed a WSN-based wildfire detection system in Melghat Tiger Reserve, India.
- Developed GPS-free localisation techniques with sub-meter accuracy.
- Optimised clustering and routing using ML and evolutionary optimisation methods.
- Experience with real-world deployments, simulations, and reproducible experimental workflows.

Research & Professional Experience

- 2021 – 2025 **Senior Research Fellow (PhD Researcher)** Indian Institute of Technology, Indore.
- 2024 **Visiting 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*.

Skills




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| 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 the 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.


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.
- 2014 – . . .  **Led education and skill development programmes** through an NGO in rural Madhya Pradesh, impacting over 500 students in underserved areas by fostering sustainable growth in health, education, and vocational training.
- 2013 – . . .  **Coordinated community-driven health** initiatives, including blood donation drives, leading to a 20% increase in donor participation and raising awareness on social causes.

References

Prof. Dr. Abhishek Srivastava
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