



# Dr. Prateek Raj Gautam

Ph.D., Electronics and Communication Engineering,  
Motilal Nehru National Institute of Technology Allahabad

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## WORK EXPERIENCE

**Assistant Professor – Senior Scale**, School of Computer Science February 2024 – **Present**  
UPES Dehradun, Uttarakhand.  
**Assistant Professor**, Computer Science & Engineering August 2022 – February 2024  
Centre for Advanced Studies, AKTU, Lucknow, UP.  
**Assistant Professor**, Electronics & Communication Engineering July 2013 – December 2015  
Allehnouse Institute of Technology, Kanpur, UP.  
**Assistant Professor**, Electronics & Communication Engineering June 2012 – July 2013  
Naraina College of Engineering and Technology, Kanpur, UP.

## EDUCATION

**Ph. D.** 2016–2021  
Electronic & Communication Engineering (Wireless Sensor Networks), **Motilal Nehru National Institute of Technology Allahabad, Prayagraj (UP), India**. Thesis Title: “Energy Efficient 2D and 3D Localization in Wireless Sensor Networks using Single Anchor Node”.

**M. Tech.** 2009–2011  
Electronic & Communication Engineering, **Harcourt Butler Technological Institute (HBTI) Kanpur (UP), India**, with an aggregate of 67.55%. Thesis Title: “Generalized One Dimensional Optical Orthogonal Coding Scheme for CDMA Systems with its Grouping and Performance Analysis”.

**B. Tech.** 2004–2008  
Electronics & Communication Engineering, **University Institute of Engineering and Technology (UIET), CSJMU Kanpur (UP), India**, with an aggregate of 62.00%.

**12 (AISSCE)** 2004  
Mathematics, Biology, Physics, Chemistry, and English; **Kendriya Vidyalaya, IIT Kanpur (CBSE)**, with an aggregate of 58.40%.

**10 (AISSE)** 2002  
Mathematics, Science, Social Studies, Hindi, and English; **Kendriya Vidyalaya, IIT Kanpur (CBSE)**, with an aggregate of 67.40%.

## RESEARCH INTERESTS & COURSES DELIVERED

Wireless Sensor Networks (WSNs) / Internet of Things (IoTs), Energy efficient WSN Localization, Wireless Communication, CDMA, IDMA, Brain Wave Mapping. Machine Learning AI/ML & Computer Vision  
**Post Grad. (M.Tech.):** Machine Learning, Computer Vision, Reinforcement Learning, Internet of Things, Data Communication Networks, Research Methodology, Concepts of Electrical & Electronics Engineering  
**Under Grad. (B.Tech.):** Digital Electronics, Microporcessors, EMFT, Digital Communication, Measurements, Analog Integrated Circuits.

## COMPUTER SKILLS

- **MATLAB** (previous collaborations: [github.com/mgeekmatlab](https://github.com/mgeekmatlab)), • **LabVIEW**, • **LTspice**, • **Embedded/IoT** design and programming **Arduino IDE/PlatformIO**, • **CST Studio**, • **KiCAD**, • **LaTeX** (pgfplots/tikz/beamer), • **Gnuplot**, • **Word/Excel**, **LibreOffice**,
- **Photoshop/Corel Draw/Inkscape/GIMP**, • **Blender**,
- **Github**, • **Web design: HTML, CSS, Javascript**, Github pages, Jekyll, hosting and server management, **WordPress, Django** (Designed and hosted conference (vcas2018) website at MNNIT ECED, online at [mnnit.ac.in/vcas2018](https://mnnit.ac.in/vcas2018)),
- **Python** (tkinter/kivy/eel) (Designed GUI based hotspot software online at [fuh.mgeek.in](https://fuh.mgeek.in)), (Form filler software online at [formhelper.mgeek.in](https://formhelper.mgeek.in)). • Designed **GeneratorJS** library in JavaScript and **PyGenerator** module in python for website templating and front-end design available online at [generatorjs.mgeek.in](https://generatorjs.mgeek.in). • **Docker, Proxmox**. • **Linux**, bash, Nix and NixOS.

## PUBLICATIONS JOURNAL(J) CONFERENCE(C)

[J1] **P. R. Gautam**, S. Kumar, A. Verma, T. Rashid, *et al.*, “Energy-efficient localization of sensor nodes in WSNs using beacons from rotating directional antenna,” *IEEE Transactions*

- on *Industrial Informatics*, vol. 15, no. 11, pp. 5827–5836, Nov. 2019. DOI: [10.1109/tii.2019.2908437](https://doi.org/10.1109/tii.2019.2908437) issn 1551-3203 **Impact Factor: 12.3** SCIE, Q1
- [J2] P. R. Gautam, S. Kumar, A. Verma, and A. Kumar, “Energy-efficient localization of sensor nodes in wsns using single beacon node,” *IET Communications*, vol. 14, no. 9, pp. 1459–1466, 2020. DOI: [10.1049/iet-com.2019.1298](https://doi.org/10.1049/iet-com.2019.1298) issn 1751-8628 **Impact Factor: 1.6** SCIE, Q2
- [J3] A. Verma, S. Kumar, P. R. Gautam, and A. Kumar, “Fuzzy logic based effective clustering of homogeneous wireless sensor networks for mobile sink,” *IEEE Sensors Journal*, vol. 20, no. 10, pp. 5615–5623, May 2020. DOI: [10.1109/jsen.2020.2969697](https://doi.org/10.1109/jsen.2020.2969697) issn 1530-437X **Impact Factor: 4.3** SCIE, Q1
- [J4] A. Verma, S. Kumar, P. R. Gautam, and A. Kumar, “Neural-fuzzy based effective clustering for large-scale wireless sensor networks with mobile sink,” *Peer-to-Peer Networking and Applications*, Jun. 2021. DOI: [10.1007/s12083-021-01167-6](https://doi.org/10.1007/s12083-021-01167-6) issn 1936-6450 **Impact Factor: 4.2** SCIE, Q2
- [J5] A. Verma, S. Kumar, P. R. Gautam, T. Rashid, *et al.*, “Broadcast and reliable coverage based efficient recursive routing in large-scale wsns,” *Telecommunication Systems*, vol. 75, no. 1, pp. 63–78, Jun. 2020. DOI: [10.1007/s11235-020-00679-5](https://doi.org/10.1007/s11235-020-00679-5) issn 1572-9451 **Impact Factor: 2.5** SCIE, Q2
- [J6] M. Yadav, P. R. Gautam, V. Shokeen, and P. K. Singhal, “Modern fisher–yates shuffling based random interleaver design for SCFDMA-IDMA systems,” *Wireless Personal Communications*, vol. 97, no. 1, pp. 63–73, May 2017. DOI: [10.1007/s11277-017-4492-9](https://doi.org/10.1007/s11277-017-4492-9) issn 0929-6212 **Impact Factor: 2.2** SCIE, Q2
- [J7] A. Verma, T. Rashid, P. R. Gautam, S. Kumar, *et al.*, “Cost and sub-epoch based stable energy-efficient clustering algorithm for heterogeneous wireless sensor networks,” *Wireless Personal Communications*, vol. 107, no. 4, pp. 1865–1879, Apr. 2019. DOI: [10.1007/s11277-019-06362-6](https://doi.org/10.1007/s11277-019-06362-6) issn 0929-6212 **Impact Factor: 2.2** SCIE, Q2
- [J8] T. Rashid, S. Kumar, A. Verma, P. R. Gautam, *et al.*, “Co-reerp: Cooperative reliable and energy efficient routing protocol for intra body sensor network (intra-wbsn),” *Wireless Personal Communications*, vol. 114, no. 2, pp. 927–948, Apr. 2020. DOI: [10.1007/s11277-020-07401-3](https://doi.org/10.1007/s11277-020-07401-3) issn 0929-6212 **Impact Factor: 2.2** SCIE, Q2
- [J9] S. Kumar, P. R. Gautam, A. Verma, T. Rashid, *et al.*, “An energy-efficient transmission in wsns for different climatic conditions,” *Wireless Personal Communications*, vol. 110, no. 1, pp. 423–444, Sep. 2019. DOI: [10.1007/s11277-019-06735-x](https://doi.org/10.1007/s11277-019-06735-x) issn 0929-6212 **Impact Factor: 2.2** SCIE, Q2
- [J10] S. Kumar, P. R. Gautam, T. Rashid, A. Verma, *et al.*, “Division algorithm based energy-efficient routing in wireless sensor networks,” *Wireless Personal Communications*, Aug. 2021. DOI: [10.1007/s11277-021-08996-x](https://doi.org/10.1007/s11277-021-08996-x) issn 1572-834X **Impact Factor: 2.2** SCIE, Q2
- [J11] R. C. S. Chauhan, A. Kumar, and P. R. Gautam, “Optical orthogonal code generation scheme and grouping of codes for optical CDMA systems,” *International Journal of System Assurance Engineering and Management*, vol. 12, no. 1, pp. 91–103, 1 Jun. 2020. DOI: [10.1007/s13198-020-01007-5](https://doi.org/10.1007/s13198-020-01007-5) issn 0976-4348 **Impact Factor: 2** SCIE, Q3
- [J12] P. R. Gautam, A. Verma, S. Kumar, D. Prasad, *et al.*, “Design of directional antennas for wireless sensor networks and the internet of things experiments,” *IEEE Sensors Letters*, vol. 6, no. 9, pp. 1–4, 2022. DOI: [10.1109/LSSENS.2022.3202919](https://doi.org/10.1109/LSSENS.2022.3202919) issn 2475-1472 **Impact Factor: 2.8** SCIE, Q2
- [J13] Shilpi, P. R. Gautam, S. Kumar, and A. Kumar, “An optimized sensor node localization approach for wireless sensor networks using rssi,” *The Journal of Supercomputing*, vol. 79, pp. 7692–7716, 2022. DOI: <https://doi.org/10.1007/s11227-022-04971-w> issn 0920-8542 **Impact Factor: 3.3** SCIE, Q2
- [J14] A. Verma, S. Kumar, P. R. Gautam, T. Rashid, *et al.*, “Enhanced cost and sub-epoch based stable energy-efficient clustering algorithm for heterogeneous wireless sensor networks,” *Wireless Personal Communications*, Jul. 2023. DOI: [10.1007/s11277-023-10601-2](https://doi.org/10.1007/s11277-023-10601-2) issn 1572-834X **Impact Factor: 2.2** SCIE, Q2
- [J15] S. Kumar, P. R. Gautam, T. Rashid, A. Verma, *et al.*, “ETDCC: Energy-efficient transmission scheme for dynamic climatic conditions in WSN,” *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, vol. 16, no. 3, p. 1126, Jun. 2018. DOI: [10.12928/telkomnika.v16i3.8513](https://doi.org/10.12928/telkomnika.v16i3.8513) issn 1693-6930 Scopus

- [J16] T. Rashid, S. Kumar, A. Verma, **P. R. Gautam**, *et al.*, “Pm-EEMRP: Postural movement based energy efficient multi-hop routing protocol for intra wireless body sensor network (intra-WBSN),” *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, vol. 16, no. 1, p. 166, Feb. 2018. DOI: [10.12928/telkomnika.v16i1.7318](https://doi.org/10.12928/telkomnika.v16i1.7318) issn 1693-6930 **Scopus**
- [J17] A. Verma, T. Rashid, **P. R. Gautam**, S. Kumar, *et al.*, “Fuzzy based stable clustering protocol for Heterogeneous wireless sensor networks,” *International Journal of Engineering and Technology*, vol. 9, no. 4, pp. 2854–2860, Aug. 2017. DOI: [10.21817/ijet/2017/v9i4/170904046](https://doi.org/10.21817/ijet/2017/v9i4/170904046) issn 0975-4024 **Scopus 2017**
- [J18] T. Rashid, S. Kumar, A. Verma, **P. R. Gautam**, *et al.*, “RB-IEMRP: Relay based improved throughput energy-efficient multi-hop routing protocol for intra body sensor network (INTRA-WBSN),” *International Journal of Computer Networks & Communications*, vol. 11, no. 02, pp. 69–82, Mar. 2019. DOI: [10.5121/ijcnc.2019.11205](https://doi.org/10.5121/ijcnc.2019.11205) issn 0974-9322 **Scopus**
- [C1] **P. R. Gautam**, S. Kumar, A. Verma, and A. Kumar, “Localization of sensor nodes in WSNs using three dimensional angle of arrival detection at BS,” in *2019 International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, ZHCET, AMU, Aligarh: IEEE, Nov. 2019, pp. 1–4. DOI: [10.1109/upcon47278.2019.8980262](https://doi.org/10.1109/upcon47278.2019.8980262) isbn: 9781728134550 issn 2687-7767 **Scopus**
- [C2] **P. R. Gautam**, S. Kumar, A. Verma, T. Rashid, *et al.*, *Localization of Sensor Nodes in WSN Using Area Between a Node and Two Beacons* (Lecture Notes in Electrical Engineering). Motilal Nehru National Institute of Technology, Allahabad: Springer, Dec. 2019, vol. 587, pp. 221–228, 1060 pp. DOI: [10.1007/978-981-32-9775-3\\_22](https://doi.org/10.1007/978-981-32-9775-3_22) isbn: 9813297743 issn 1876-1100 **Book chapter**
- [C3] **P. R. Gautam**, S. Kumar, and A. Kumar, “Sensor localization in wsns using rotating directional - antenna at the base station,” in *Advances in VLSI, Communication, and Signal Processing*, ser. Lecture Notes in Electrical Engineering, vol. 683, Motilal Nehru National Institute of Technology, Allahabad: Springer, Oct. 2020, pp. 705–718. DOI: [10.1007/978-981-15-6840-4\\_58](https://doi.org/10.1007/978-981-15-6840-4_58) isbn: 978-981-15-6839-8 issn 1876-1100 **Book chapter**
- [C4] A. Kumar, S. Kumar, **P. R. Gautam**, A. Verma, *et al.*, *Performance Evaluation of Multi-operands Floating-Point Adder* (Lecture Notes in Electrical Engineering). JK Institute of Applied Physics and Technology, Allahabad University, Allahabad: Springer Singapore, Dec. 2019, vol. 524, pp. 537–546. DOI: [10.1007/978-981-13-2685-1\\_51](https://doi.org/10.1007/978-981-13-2685-1_51) isbn: 9811326843 issn 1876-1119 **Book chapter**
- [C5] S. Kumar, A. Verma, **P. R. Gautam**, A. Dayal, *et al.*, “The load balancing of optimizing LEACH clustering algorithm with mobile sink and rendezvous nodes,” in *2018 5th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, Madan Mohan Malaviya University of Technology, Gorakhpur: IEEE, Nov. 2018. DOI: [10.1109/upcon.2018.8596989](https://doi.org/10.1109/upcon.2018.8596989) isbn: 978-1-5386-5002-8 issn 2687-7759 **Scopus**
- [C6] S. Kumar, **P. R. Gautam**, A. Verma, R. Verma, *et al.*, *Energy Efficient Routing using Sectors Based Energy-Hole Reduction in WSNs*. ZHCET, AMU, Aligarh: IEEE, 2019. DOI: [10.1109/upcon47278.2019.8980254](https://doi.org/10.1109/upcon47278.2019.8980254) isbn: 978-1-7281-3455-0 issn 2687-7767 **Scopus**
- [C7] A. Verma, S. Kumar, **P. R. Gautam**, and A. Kumar, *Stable Energy-Efficient Routing Algorithm for Dynamic Heterogeneous Wireless Sensor Networks* (Lecture Notes in Electrical Engineering). Motilal Nehru National Institute of Technology, Allahabad: Springer, Dec. 2019, vol. 587, pp. 221–228, 1060 pp. DOI: [10.1007/978-981-32-9775-3\\_15](https://doi.org/10.1007/978-981-32-9775-3_15) isbn: 9813297743 issn 1876-1100 **Book chapter**
- [C8] S. Shilpi, **P. R. Gautam**, S. Kumar, and A. Kumar, “A comparative analysis of distance-based node localization in wireless sensor network,” in *2021 8th International Conference on Signal Processing and Integrated Networks (SPIN)*, vol. 0, 2021, pp. 118–123. DOI: [10.1109/SPIN52536.2021.9566136](https://doi.org/10.1109/SPIN52536.2021.9566136) isbn: 9781665435642 issn 0 **Scopus**
- [C9] M. Yadav, **P. R. Gautam**, and K. Singhal P., “Inverse tree interleavers in uav communications for interference mitigation,” in *Decision Support Systems for Smart City Applications* (Concise Introductions to AI and Data Science), Concise Introductions to AI and Data Science. John Wiley & Sons, Ltd, Dec. 2022, ch. 3, pp. 35–52. DOI: [10.1002/9781119896951.ch3](https://doi.org/10.1002/9781119896951.ch3) isbn: 9781119896951 issn **Book chapter**

“Sensor Localization in WSNs Using Rotating Directional - Antenna at the Base Station.” In *2nd International Conference on VLSI, Communication and Signal Processing (VCAS 2019)* at MNNIT Allahabad (UP) India. 21st – 23rd October 2019

## JOURNAL REVIEWER AND EDITOR

• IEEE Transactions on Industrial Informatics WOS (3), • IET Communications WOS (6),  
• International Journal of Distributed Sensor Networks WOS (1), • Asian Journal of Cardiology  
Research (1), • SN Applied Sciences WOS (1), • Telecommunication Systems (3), • Journal of Optical  
Communications (1), • Optica Applicata (1), • International Journal of Procurement Management  
(1), and • AE IJSAEM (8).

## WORKSHOPS /FDP

1. One-week GIAN workshop “Advances in Nanotechnology and its Application in Future Electronics (ANFE-2017)” held at MNNIT Allahabad.  
– Participated and volunteered 6th – 10th November, 2017
2. Ten days GIAN workshop on “Internet of Things in Smart Living & Cyber-Physical-Social Systems” held at IIT Kanpur.  
– Participated and volunteered. 8th – 17th January 2018
3. Summer training program on “VLSI Design & Embedded System (VDES-2018)” held at MNNIT Allahabad.  
– Volunteered. 13th June – 12th July, 2018
4. ATAL Academy FDP on “Blockchain” held at MNNIT Allahabad.  
– Participated. 16th – 20th September 2019
5. ATAL Academy FDP on “Artificial Intelligence” held at MNNIT Allahabad.  
– Participated. 10th – 14th December 2019
6. One-week short term course on “Computational Physics” held at MNNIT Allahabad.  
– Participated. 1st – 5th March 2021
7. One-week FDP on “IPR Awareness and Patent Prosecution” held at MNNIT Allahabad.  
– Participated. 13th – 17th July 2021
8. One-week FDP on “Antenna Design and Microwave Applications” held at HBTU Kanpur.  
– Participated. 23th – 27th July 2021

## WORKSHOPS FACILITATED

Manuscript preparation in LaTeX,  
Programming with 8051 micro-controller.

## AWARDS AND OTHER ACHIEVEMENTS

1. Awarded national scholarship “RG-NFSC” from UGC. 2017-2021
2. Offered national scholarship “MANF” from UGC based on NET score 2020
3. Eight times GATE qualified. 2008, 2009, 2012, 2013, 2014, 2016, 2017, and 2020
4. Three times UGC NET (Electronics Science) qualified. Jul-2016, Jan-2017, and Dec-2019
5. Member of IEEE, IEEE Industrial Electronics Society, IEEE Microwave Theory and Techniques Society, and IEEE Broadcast Technology Society.
6. NPTEL Online Certification on MATLAB for Numerical Computations.

## REFERENCES

1. Dr. Arvind Kumar *Associate Professor*, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: [arvindk@mnnit.ac.in](mailto:arvindk@mnnit.ac.in) Mob: 7081869266, – *Ph.D. Thesis Supervisor*
2. Dr. Arun Prakash *Associate Professor*, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: [arun@mnnit.ac.in](mailto:arun@mnnit.ac.in) Mob: 9794008282.
3. Dr. Basant Kumar *Associate Professor*, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: [singhbasant@mnnit.ac.in](mailto:singhbasant@mnnit.ac.in) Tel: +91-0532-2271468.
4. Dr. Vijay Shankar Tripathi *Professor*, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: [vst@mnnit.ac.in](mailto:vst@mnnit.ac.in) Mob: 8004818000.
5. Dr. Ram Chandra Singh Chauhan *Associate Professor*, ECED, IET, Sitapur Road, Lucknow UP, E.Mail: [ram1.hbti@gmail.com](mailto:ram1.hbti@gmail.com) Mob: 9336050184. – *M.Tech. Dissertation Supervisor*

PERSONAL  
PROFILE

Name: Dr. Prateek Raj Gautam  
DOB: 17 June 1987  
Email: [dr.prateekrajgautam@gmail.com](mailto:dr.prateekrajgautam@gmail.com), [prateek@mgeek.in](mailto:prateek@mgeek.in)  
Mobile: +91- 9151 404 899  
Address: E 5409 Avas Vikas 1, Kalyanpur, Kanpur, UP - 208017, India  
Father's name: Mr. Shriram Gautam  
Mother's name: Mrs. Archana Gautam

DECLARATION

I hereby declare that the above information given is true to the best of my knowledge and I bear the responsibility for the correctness of the above-mentioned particulars.

*Dr. Prateek Raj Gautam*

July 28, 2024