



# Dr. Prateek Raj Gautam

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

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ORCID:0000-0002-2889-4275, PUBLONS:I-9311-2017, IEEE:91250146, SCHOLAR:slZHj6cAAAAJ

## WORK

### EXPERIENCE

Assistant Professor

CSED, Centre for Advanced Studies, AKTU, Lucknow, UP.

August 2022 – Current

Assistant Professor

ECED, Naraina College of Engineering and Technology, Kanpur, UP.

June 2012 – July 2013

Assistant Professor

ECED, Allehnouse Institute of Technology, Kanpur, UP.

July 2013 – December 2015

## 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%.

## RESEARCH

### INTERESTS

Wireless Sensor Networks (WSNs) / Internet of Things (IoTs), Energy efficient WSN Localization, Wireless Communication, CDMA, IDMA, Brain Wave Mapping.

## 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 [mnit.ac.in/vcas2018](http://mnit.ac.in/vcas2018)),
- **Python** (tkinter/kivy/eel) (Designed GUI based hotspot software online at [fwh.mgeek.in](http://fwh.mgeek.in)), (Form filler software online at [formhelper.mgeek.in](http://formhelper.mgeek.in)), and • **Linux**, Terminal, and Windows.
- Designed **GeneratorJS** library in JavaScript and **PyGenerator** module in python for website templating and front-end design available online at [generatorjs.mgeek.in](http://generatorjs.mgeek.in).

## 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: 11.648** **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: 1.345** **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: 4.325** **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: 3.488** **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: 2.336** **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: 2.017** **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: 2.017** **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: 2.017** **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: 2.017** **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: 2.017** **SCIE, Q2**
- [J11] 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*, pp. 2335–2354, 2022. DOI: <https://doi.org/10.1007/s11227-022-04971-w> issn 0920-8542 **Impact Factor: 2.557** **SCIE, Q2**
- [J12] 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 **ESCI, 0.52**
- [J13] **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/LSENS.2022.3202919](https://doi.org/10.1109/LSENS.2022.3202919) issn 2475-1472 **ESCI, 0.43**
- [J14] 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**
- [J15] 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**
- [J16] 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**
- [J17] 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](https://doi.org/10.1007/978-981-15-6840-4) **Book chapter**
- [C4] S. Kumar, **P. R. Gautam**, S. Verma, and A. Kumar, "An energy-efficient localization scheme using beacon nodes for wireless sensor networks," in *Advances in VLSI, Communication, and Signal Processing*, Motilal Nehru National Institute of Technology, Allahabad: Springer Singapore, 2021, pp. 145–155. DOI: [10.1007/978-981-15-6840-4\\_12](https://doi.org/10.1007/978-981-15-6840-4_12) isbn: 978-981-15-6840-4 issn [1876-1100](https://doi.org/10.1007/978-981-15-6840-4) **Book chapter**
- [C5] 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](https://doi.org/10.1007/978-981-13-2685-1) **Book chapter**
- [C6] 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](https://doi.org/10.1109/upcon.2018.8596989) **Scopus**
- [C7] 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](https://doi.org/10.1109/upcon47278.2019.8980254) **Scopus**
- [C8] 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](https://doi.org/10.1007/978-981-32-9775-3) **Book chapter**
- [C9] 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](https://doi.org/10.1109/SPIN52536.2021.9566136) **Scopus**
- [C10] 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](https://doi.org/10.1002/9781119896951.ch3)

## PAPER PRESENTED

"Localization of Sensor Nodes in WSNs using Three Dimensional Angle of Arrival detection at BS" In *1st International Conference on VLSI, Communication and Signal Processing (VCAS 2018)* at MNNIT Allahabad (UP) India. 29th November to 1st December 2018

"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

## PEER REVIEW

• 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 • International Journal of Systems Assurance Engineering and Management (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 **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. Vijay Shankar Tripathi** Professor, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, **E.Mail:** [vst@mnnit.ac.in](mailto:vst@mnnit.ac.in) **Mob:** 8004818000.
4. **Dr. Ram Chandra Singh Chauhan** Associate Professor, ECED IET Sitapur, 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: [prateekrajgautam@gmail.com](mailto:prateekrajgautam@gmail.com), [rel1601@mnnit.ac.in](mailto:rel1601@mnnit.ac.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 consider myself to be familiar with the various aspects of electronics and communication engineering. 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.*

*Prateek Raj Gautam*

January 12, 2023