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
UPES Dehradun, Uttarakhand. *February 2024 – Present*

Assistant Professor, Computer Science & Engineering
Centre for Advanced Studies, AKTU, Lucknow, UP. *August 2022 – February 2024*

Assistant Professor, Electronics & Communication Engineering
Allehnouse Institute of Technology, Kanpur, UP. *July 2013 – December 2015*

Assistant Professor, Electronics & Communication Engineering
Naraina College of Engineering and Technology, Kanpur, UP. *June 2012 – July 2013*

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 Dimentional 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), • **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)*,
• **Python** (tkinter/kivy/eel) *(Designed GUI based hotspot software online at fwh.mgeek.in)*, *(Form filler software online at 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. • **Docker**, **Proxmox**. • **Linux**, bash, **Nix** and **NixOS**.

PUBLICATIONS JOURNAL(*J*) CONFERENCE(*C*)

[*J*1]   **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 issn 1551-3203 **Impact Factor: 12.3**   **SCIE, Q1**

[*J*2] **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 issn 1751-8628 **Impact Factor: 1.6**   **SCIE, Q2**

[*J*3] 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 issn 1530-437X **Impact Factor: 4.3**   **SCIE, Q1**

[*J*4] 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 issn 1936-6450 **Impact Factor: 4.2**   **SCIE, Q2**

[*J*5] 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 issn 1572-9451 **Impact Factor: 2.5**   **SCIE, Q2**

[*J*6] 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 issn 0929-6212 **Impact Factor: 2.2**   **SCIE, Q2**

[*J*7] 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 issn 0929-6212 **Impact Factor: 2.2**   **SCIE, Q2**

[*J*8] 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 issn 0929-6212 **Impact Factor: 2.2**   **SCIE, Q2**

[*J*9] 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 issn 0929-6212 **Impact Factor: 2.2**   **SCIE, Q2**

[*J*10] 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 issn 1572-834X **Impact Factor: 2.2**   **SCIE, Q2**

[*J*11] 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 issn 0976-4348 **Impact Factor: 2**   **SCIE, Q3**

[*J*12] **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 issn 2475-1472 **Impact Factor: 2.8 SCIE, Q2**

[*J*13] 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**

[*J*14] 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 issn 1572-834X **Impact Factor: 2.2**   **SCIE, Q2**

[*J*15] 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 issn 1693-6930   **Scopus**

[*J*16] 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 issn 1693-6930 **Scopus**

[*J*17] 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 issn 0975-4024 **Scopus 2017**

[*J*18] 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 issn 0974-9322 **Scopus**

[*C*1] **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 isbn: 9781728134550 issn 2687-7767 **Scopus**

[*C*2] **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 isbn: 9813297743 issn 1876-1100 **Book chapter**

[*C*3] **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 isbn: 978-981-15-6839-8 issn 1876-1100 **Book chapter**

[*C*4] 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 isbn: 9811326843 issn 1876-1119 **Book chapter**

[*C*5] 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 isbn: 978-1-5386-5002-8 issn 2687-7759 **Scopus**

[*C*6] 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 isbn: 978-1-7281-3455-0 issn 2687-7767 **Scopus**

[*C*7] 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 isbn: 9813297743 issn 1876-1100 **Book chapter**

[*C*8] 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 isbn: 9781665435642 issn 0 **Scopus**

[*C*9] 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 isbn: 9781119896951 issn **Book chapter**

[*C*10] A. Rukasar and P. R. Gautam, "Lane detection and tracking algorithms for driver assistance system," in 2023, pp. 872–879. DOI: 10.1109/icac3n60023.2023.10541447 isbn: 9798350330861 issn **scopus**

[*C*11] V. Kumar, A. Kumar, and **P. R. Gautam**, "Dental disease detection and classification in radiograph images using deep learning model," in 2023, pp. 1198–1203. DOI: 10.1109/ICAC3N60023.2023.10541747 isbn: 9798350330861 issn   scopus

[*C*12] N. Awasthi, **P. R. Gautam**, and A. Sharma, "Rfecv-dt: Recursive feature selection with cross validation using decision tree based android malware detection," in 2024. DOI: 10.1109/ICCCNT61001.2024.10725127 isbn: 9798350370249 issn   scopus

[*C*13] M. Ansari and **P. R. Gautam**, "Classification of soil moisture content with the application of deep learning," in 2024. DOI: 10.1109/ICIC3S61846.2024.10603387 isbn: 9798350364088 issn   scopus

[*C*14] A. Sharma, A. Upadhyay, and **P. R. Gautam**, "Prediction of water discharge in mahanadi river basin, india using artificial neural networks," in 2025, vol. 1, pp. 28–32. DOI: 10.1201/9781003501244-5 isbn: 9781032911571 issn   scopus

[*C*15] P. Mishra, J. Singh, and **P. R. Gautam**, "Mustard and wheat mildew disease classification using deep learning," in 2025, vol. 1, pp. 72–78. DOI: 10.1201/9781003501244-14 isbn: 9781032911571 issn   scopus

[*C*16] A. Upadhyay, A. Sharma, and **P. R. Gautam**, "Estimation of sediment load in mahanadi river, india using artificial neural networks," in 2025, vol. 1, pp. 23–27. DOI: 10.1201/9781003501244-4 isbn: 9781032911571 issn   scopus

[*C*17] M. Ansari and **P. R. Gautam**, "Comparison of different pre-trained deep learning models for classification of soil moisture content," in 2025, vol. 2, pp. 107–113. DOI: 10.1201/9781003561651-15 isbn: 9781032911571 issn   scopus

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*
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 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 Mob:*9794008282*.
3. Dr. Basant Kumar *Associate Professor*, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: 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 Mob:*8004818000*.
5. Dr. Ram Chandra Singh Chauhan *Associate Professor*, ECED, IET, Sitapur Road, Lucknow UP, E.Mail: ram1.hbti@gmail.com Mob:*9336050184*. *– M.Tech. Dissertation Supervisor*

PERSONAL PROFILE

Name:	Dr. Prateek Raj Gautam
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Email:	dr.prateekrajgautam@gmail.com, prateek@mgeek.in
Mobile:	+91- 7376 566 322
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.

January 3, 2025