

CURRICULUM VITAE

Raghavendra Pal, Ph.D

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Research Interests

- ✓ 5G New Radio Communications
- ✓ Internet of Things
- ✓ Machine learning for wireless communications
- ✓ 5G – Vehicle to Everything Communication
- ✓ Cognitive Radio Networks
- ✓ Intelligent Transportation Systems

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Educational Qualifications

Qualification	Branch/ Stream	College/Board	Year of Passing	CGPA/ Percentage
Ph.D.	Vehicular and Ad hoc Networks	Motilal Nehru National Institute of Technology Allahabad	2019	10
M.Tech	Communication Systems	Motilal Nehru National Institute of Technology Allahabad	2016	9.2
B.Tech	Electronics and Communication Engineering	Tezpur (Central) University, Assam	2014	7.53
Intermediate	Mathematics	U.P. Board	2009	76.4%
High School	Mathematics	U.P. Board	2007	75%

Competitive Exams Qualified:

No.	Exam	Year	Marks	All India Rank
1	GATE	2014	638/1000	3124
2	UGC NET	2015	68.57%	-

Experience:

No.	Institute	Position	Date of Joining	Date of Relieving
1	Sardar Vallabhbhai National Institute of Technology, Surat	Assistant Professor Grade – II	16/04/2021	Ongoing
2	Madanapalle Institute of Technology and Science, Chittoor, A.P.	Assistant Professor	25/09/2020	15/04/2021
3	Vaagdevi College of Engineering, Warangal	Assistant Professor	03/09/2019	22/09/2020

Ph.D. Thesis

Title: Multichannel and Cognitive MAC protocols for safety applications in VANET.

Supervisors: 1. Prof. Rajeev Tripathi, MNNIT Allahabad

2. Dr. Arun Prakash, MNNIT Allahabad

Skills

✓ C	✓ C++	✓ MATLAB	✓ Tcl
✓ Network Simulator 2	✓ Qualnet	✓ AWK	✓ Machine Learning
✓ LATEX	✓ Python	✓ Data Science	✓ Experimental IoT
✓ Visio/draw.io	✓ Arduino	✓ Network Simulator 3	✓ Raspberry Pi

Publications:

International Journals:

1. R. Pal, S. Dahiya, Optimal Channel Selection algorithm for CRahNs, Physical Communications, Elsevier, Vol. 54, pp. 101853 October, 2022. DOI: <https://doi.org/10.1016/j.phycom.2022.101853>. ISSN: 1874-4907
2. Krishnan B. Iyengar, Raghavendra Pal, Upena Dalal, A dual phase genetic algorithm for improved initial access in 5G millimeter wave communication, Physical Communication, Volume 59, 2023, 102081, ISSN: 1874-4907, <https://doi.org/10.1016/j.phycom.2023.102081>.
3. S. Dahiya and R. Pal, "L-shape Array based Technique to Reduce Cross User Correlation in Massive MIMO Systems," in **IEEE Wireless Communications Letters**, 2023. doi: 10.1109/LWC.2023.3285274.
4. Raghavendra Pal, Arun Prakash, and Rajeev Tripathi, "Triggered CCHI Multichannel MAC protocol for Vehicular Ad Hoc Networks," **Vehicular Communications, Elsevier**, Vol. 12, 2018, pp. 14–22, DOI: <https://doi.org/10.1016/j.vehcom.2018.01.007>. ISSN: **2214-2096**.
5. Raghavendra Pal, Nishu Gupta, Arun Prakash, and Rajeev Tripathi, "Adaptive Mobility and Range Based Clustering Dependent MAC Protocol for Vehicular Ad-hoc Networks," **Wireless Personal Communications, Springer**, Volume 98, 2018, pp. 1155-1170, DOI: <https://doi.org/10.1007/s11277-017-4913-9>. ISSN: **0929-6212**
6. Raghavendra Pal, Arun Prakash, Rajeev Tripathi and Dhananjay Singh "Analytical model for clustered Vehicular Ad hoc Network analysis," **ICT Express, Elsevier**, Vol.4, No.3, pp. 160-164, 2018. DOI: <https://doi.org/10.1016/j.icte.2018.01.001>. ISSN: 2405-9595
7. Pant Varun Prakash, Saumya Tripathi, Raghavendra Pal and Arun Prakash," A Slotted Multichannel MAC Protocol for fair resource allocation in VANET", **IJMCMC, IGI global**, Vol.9, No.3, pp.45-59, 2018. DOI: 10.4018/IJMCMC.2018070103. ISSN: 1937-9412
8. Raghavendra Pal, Arun Prakash, Rajeev Tripathi and Kshirasagar Naik, "Scheduling algorithm based on preemptive priority and hybrid data structure for cognitive radio technology with vehicular ad hoc network", **IET Communications**. Volume 13, Issue 20, 19 December 2019, pp. 3443 – 3451. DOI: 10.1049/ietcom.2019.0574. ISSN:1751-8636

9. R. Pal, A. Prakash, R. Tripathi and K. Naik, "Regional Super Cluster Based Optimum Channel Selection for CR-VANET," in ***IEEE Transactions on Cognitive Communications and Networking***, vol. 6, no. 2, pp. 607-617, June 2020, DOI: 10.1109/TCCN.2019.2960683. ISSN: 2332-7731
10. R. Pal, N. Gupta, A. Prakash, R. Tripathi and JJPC Rodrigues, "Deep Reinforcement Learning based Optimal Channel Selection for Cognitive Radio VANET", ***IET Communications***. Volume 14, Issue 19, pp. 3464 – 3471, December 2020. DOI: 10.1049/iet-com.2020.0451, ISSN:1751-8636
11. S. Balhara, P, Bhardwaj, R. Pal, N. Gupta, "An Intelligent Scheme for Slot Reservation in Vehicular Ad Hoc Networks" China communication, Vol.18 Issue 7 pp.223-235, July, 2021 . DOI: 10.23919/JCC.2021.07.018. ISSN: 1673-5447

International Conferences:

1. A. Jasper, A. Prakash, S. Paiva and R. Pal, "Performance analysis of a novel MAC protocol in mmWave V2X network for the safety application in Outdoor Parking Lot," 2023 First International Conference on Microwave, Antenna and Communication (MAC), Prayagraj, India, 2023, pp. 1-4, doi: 10.1109/MAC58191.2023.10177121.
2. Jasper, A., Prakash, A., Paiva, S., Pal, R. (2023). Performance Analysis of mmWave V2V Communication Using Relay Vehicle for Advanced Safety Applications. In: Nagaria, R.K., Tripathi, V.S., Zamarreno, C.R., Prajapati, Y.K. (eds) VLSI, Communication and Signal Processing. VCAS 2022. Lecture Notes in Electrical Engineering, vol 1024. Springer, Singapore. https://doi.org/10.1007/978-981-99-0973-5_29
3. Singh P., Pal R., Gupta N., Clustering Based Single-hop and Multi-hop Message Dissemination Evaluation Under Varying Data Rate in Vehicular Ad-hoc Network. In: Choudhary R., Mandal J., Auluck N., Nagarajaram H. (eds) Advanced Computing and Communication Technologies. Advances in Intelligent Systems and Computing, vol 452. Springer, Singapore, 2016.
4. U. Prakash, R. Pal and N. Gupta, "Performance evaluation of IEEE 802.11p by varying data rate and node density in vehicular ad hoc network," 2015 IEEE Students Conference on Engineering and Systems (SCES), Allahabad, 2015, pp. 1-5. DOI: 10.1109/SCES.2015.7506457
5. R. Kumar, R. Pal, A. Prakash and R. Tripathi (2019), A Collective Scheduling Algorithm for Vehicular Ad Hoc Network. In: Khare A., Tiwary U., Sethi I., Singh N. (eds) Recent Trends in Communication, Computing, and Electronics. Lecture Notes in Electrical Engineering, vol 524. Springer, Singapore. DOI: 10.1007/978-981-13-26851_18.
6. Akhil Chandran T., Pal R., Prakash A., Tripathi R. (2020) Proactive Spectrum Handoff-Based MAC Protocol for Cognitive Radio Ad hoc Network. In: Dutta D.,

- Kar H., Kumar C., Bhadauria V. (eds) Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol 587. Springer, Singapore. DOI: 10.1007/978-981-32-9775-3_9
7. Agarwal A., Pal R., Prakash A. (2020) A Scheduling Algorithm Including Deadline of Messages in Vehicular Ad hoc Network. In: Dutta D., Kar H., Kumar C., Bhadauria V. (eds) Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol 587. Springer, Singapore. DOI: 10.1007/978-98132-9775-3_11
 8. Pal, R., Thenua, R.K., Siddiqui, F. (2021). Optimal Cognitive Channel Selection Using Deep Learning in CR-VANET. In: Singh Mer, K.K., Semwal, V.B., Bijalwan, V., Crespo, R.G. (eds) Proceedings of Integrated Intelligence Enable Networks and Computing. Algorithms for Intelligent Systems. Springer, Singapore. **Conference:** International Virtual Conference on Integrated Intelligence Enable Networks & Computing, IT Gopeshwar, 5-7 September, 2020. https://doi.org/10.1007/978-981-33-6307-6_83

Book Chapters

1. Raghavendra Pal, Nishu Gupta, Arun Prakash and Rajeev Tripathi, “Medium access control in connected vehicles: Advances and Limitations”, In “Internet of Vehicles and its Applications in Autonomous Driving, Unmanned System Technologies”, Springer Nature Switzerland AG 2020. Editors: Nishu Gupta, Arun Prakash, Rajeev Tripathi. DOI: https://doi.org/10.1007/978-3-03046335-9_5
2. Raghavendra Pal, “Hybrid data structure for fast queuing operations in Vehicular Communication”. In “Augmented Intelligence Towards Smart Vehicular Applications” CRC Press. Editors: Nishu Gupta, Joel Rodrigues, Justin Dauwels. DOI: <https://doi.org/10.1201/9781003006817>.
3. Raghavendra Pal, “Human Interaction with Vehicles for Improved Safety”. In “Human-Machine Interaction and IoT Applications for a Smarter World” Editors: Nishu Gupta, Srinivasa Kiran Gottapu, Rakesh Nayak, Anil Kumar Gupta, Mohammad Derawi, Jayden Khakurel. DOI: <https://doi.org/10.1201/9781003268796>.

Research Projects

1. ‘Design and Development of Wireless Sensor Network for Protocol Optimization for border surveillance’, SEED Grant, Sardar Vallabhbhai National Institute of Technology, Surat. (9.92 Lakhs)

Courses Taught

At UG Level: Communication Networks, Internet of Things, Data Structures and Algorithms, Signals and Systems, Computer Networks, Network Theory and Mobile and Telecommunication Networks.

At PG Level: Advanced Data Communication, Internetworking.

Labs Established:

1. IoT and Networking Lab in Department of Electronics Engineering, Sardar Vallabhbhai National Institute of Technology, Surat.
2. Robotics Lab in Department of Electronics Engineering, Sardar Vallabhbhai National Institute of Technology, Surat.
3. Quantum Communication and Research Lab in Department of Electronics Engineering, Sardar Vallabhbhai National Institute of Technology, Surat.

Other Responsibilities held

1. Included in the Technical Program Committee of an international conference 'International Conference on Device Intelligence, Computing and Communication Technologies (DICCT-2023)' held in Graphic Era (Deemed to be University), Dehradun from March 17-18, 2023.
2. Session Chair, Technical Session- 1 on December 12, 2020 at 1st International Conference on Computational Intelligence & Energy Advancements (ICCIEA-2020), jointly organized by Vaagdevi College of Engineering, Warangal, India & Faculty of Computing and Information Technology in Rabigh, King Abdulaziz University, Saudi Arabia from December 12-13, 2020.
3. Chapter Chair, Communication Society, IEEE Student Branch chapter, MNNIT Allahabad.
4. Member of editorial board, Wireless Communication Technology, Malaysia.

Reviewer of International Journals

1. EAI Transactions
2. China Communications
3. Wireless Personal Communications
4. IEEE Access
5. Physical Communication

Guest Lecture Delivered

1. Online lecture on the topic '**Machine learning in Cognitive Radio ad hoc Networks**' on 09/10/2021 organized by Society of Electronics Engineers (SEE) in collaboration with IEEE Student branch of MIET, Meerut
2. Online lecture on the topic '**Recent Trends in Communication Technologies – A Future Prospective**' as a part of 'A Margdarshan Initiative Invited talk' on 29/01/2022 organized by C.V. Raman Global University, Bhubaneshwar, Odisha
3. Online lecture on the topic '**Machine Learning in wireless communications**' as a part of IEEE UP Graduate Talk on 15/05/2022 organized by IEEE U.P. Section.
4. Online lecture on "**Vehicular Communication**" as a part of **one week FDP on "Recent trends in Electronics and Communication"** 13th – 18th July, 2020 organized by Department of ECE, BALAJI INSTITUTE OF TECHNOLOGY AND SCIENCE.
5. Online lecture on the topic '**Recent trends in wireless communication**' in Challenges and Research Opportunities in Wireless Communication on 12/05/2023 organized by Academic Staff College in association with School of Electronics Engineering of VIT Vellore.
6. Online lecture on the topic '**Career Excellence in IoT**' on 18/03/2023 organized by KL University, Vijaywada.
7. Online lecture on the topic '**Data communication and Networking for Drones**' as a part of 'Bootcamp 1.0 on Drone Assembly, Navigation, and Applications' on 12/04/2023. Organized by Department of Electronics Engineering, SVNIT, Surat.

Webinars Organized

1. A two days webinar on "Realization of wired and wireless networks in Network simulator 2", 22-23rd May 2020.
2. A two days webinar on "New protocol implementation in network simulator 2", 5-6th June, 2020.

Conferences Attended

1. International Conference on Emerging Trends in Communication, Computing and Electronics (IC3E - 2018), April 13-15, 2018.
2. First International Conference on VLSI, Communication and Signal Processing (VCAS 2018). 29 Nov. – 1 Dec 2018.
3. 9th International Conference on Advanced Computing and Communication Technologies. 27-29 Nov 2015.

Workshops Attended

1. DST Sponsored STTP on 'Design Thinking for Entrepreneurship' during 17th to 21st July 2023 organized by Association for Harnessing Innovation & Entrepreneurship (ASHINE), Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat
2. AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "IoT in Health Care" during 12/12/2021 to 16/12/2021 organized by Indian Institute of Information Technology, Nagpur
3. Online GIAN course on "Advances in Nanotechnology & its Application in Future Electronics" during 07/03/2022 to 11/03/2022 organized by Motilal Nehru National Institute of Technology Allahabad.
4. Workshop on Network Simulation, Department of Computer science and engineering, MNNIT Allahabad, 8th - 12th july, 2017.
5. Workshop on Antenna Design and Signal Processing Techniques for 5G Networks and IoT (ADSPNIT - 2017), 27th Feb-4th March, 2017, Department of Electronics and communication Engineering, MNNIT Allahabad.
6. Workshop on Communication & Antenna Design for IoT (CADIT-2017), 22 - 27th September, 2017, Department of Electronics and communication Engineering, MNNIT Allahabad.
7. One week Workshop on Soft Skills (SS 2018), 21-25th May, 2018, TEQIP - III, MNNIT Allahabad.

Professional Membership: Member, IEEE Since 1st January, 2017.

Personal Details:

Date of Birth: 12/09/1991

Place of Birth: Agra

Father's Name: Shri Ram Prakash Pal

Mother's Name: Smt. Geeta Kumari

Permanent Address: 7, Panchavati, Shyam Nagar, Shahganj, Agra-282010