Personal Profile

Dr. Jagdeep Rahul
Associate Professor, Department of Electronics and Communication Engineering
Rajiv Gandhi University, Rono Hills, Doimukh, Arunachal Pradesh-791112

Email: **jagdeep.rahul@rgu.ac.in**
            jagdeeprahul24@gmail.com

PhoneNo.:   **+919451779948;+918299844670**

Educational Profile

Ph.D.	Rajiv Gandhi University, Doimukh, Arunachal Pradesh; 2021
	Supervisor: Dr. Marpe Sora
M. Tech.	ABV-Indian Institute of Information Technology and Management, Gwalior, Madhya Pradesh; 2012
	Subject: Computer Science and Engineering
	Specialization: VLSI Design
B. Tech.	Bundelkhand University, Jhansi, Uttar Pradesh; 2009
	Subject: Electronics and Communication Engineering

Professional Experience

Associate Professor, Department of Electronics and Communication Engineering, Rajiv Gandhi University, Arunachal Pradesh, India	01st March, 2023- till date
AssistantProfessor, Department of Electronics and Communication Engineering, Rajiv Gandhi University, Arunachal Pradesh, India	28th July, 2015 - 28th Feb, 2023
AssistantProfessor, Department of Electronics and Electrical Engineering, Lovely Professional University, Punjab, India	01st August, 2012- 29th Nov, 2014

Administrative Experience

Head (i/c), Department of Electronics and Communication Engineering, Rajiv Gandhi University, Arunachal Pradesh, India	07th August, 2015- 31st August, 2020
Member of Board of Post Graduate Studies (BPGS), Department of ECE, Rajiv Gandhi University, Arunachal Pradesh, India	16th March, 2016- till date

Member of Community Radio Station, Rajiv Gandhi University, Arunachal Pradesh, India	01st Sep, 2019- till date
Member of Skill Based Programme Committee, Rajiv Gandhi University, Arunachal Pradesh, India	27th April, 2020- till date
Member of Software Inventory Committee, Rajiv Gandhi University, Arunachal Pradesh, India	25th June, 2021- till date
Member of Board of Studies for Creative Learning, Rajiv Gandhi University, Arunachal Pradesh, India	04th Oct, 20121 – till date

Awards & Honours

1. Qualified GATE in 2010, 2013, 2014.

2. GATE-MHRD fellowship by MHRD, Govt. India (2010-2012)

3. Second position in Cash Award for quality research publication from Rajiv Gandhi University.

Membership of Professional Bodies

1. ACM Professional Member, USA (2022-23) (4826488)

Research Interests

- Discrete time signal processing
- Biomedical signal processing
- Artificial Intelligence

Research Publications

1. Lakhan Dev Sharma, **Jagdeep Rahul,** Apeksha Aggarwal, and Vijay Kumar Bohat. "An improved cardiac arrhythmia classification using stationary wavelet transform decomposed short duration QRS segment and Bi-LSTM network". *Multidimensional Systems and Signal Processing*, 2023, 1-18. **(SCI IF: 2.03)**

2. M Krishna Chaitanya, Lakhan Dev Sharma, **Jagdeep Rahul,** Diksha Sharma, and Amarjit Roy. "Artificial intelligence-based approach for categorization of COVID-19 ECG images in presence of other cardiovascular disorders". *Biomedical Physics & Engineering Express* (IOP), 2023, 1-13. **(Scopus)**

3. **Jagdeep Rahul** and Lakhan Dev Sharma. "Automatic cardiac arrhythmia classification based on hybrid 1-D CNN and Bi-LSTM model". *Biocybernetics and Biomedical Engineering,* 2022, 42(1), 312-324. **(SCI IF: 5.687)**

4. **Jagdeep Rahul** and Lakhan Dev Sharma. "Artificial intelligence–based approach for atrial fibrillation detection using normalised and short-duration time-frequency ECG". *Biomedical Signal Processing and Control,* 2022, *71(3),*1 -9*.* **(SCI IF: 5.076)**

5. **Jagdeep Rahul**, Marpe Sora, and Lakhan Dev Sharma. "A novel and lightweight

P, QRS, and T peaks detector using adaptive thresholding and template waveform". *Computers in Biology and Medicine,* 2021, *132(3)*, 1-14. **(SCI IF: 6.698)**

6. **Jagdeep Rahul**, Marpe Sora, Lakhan Dev Sharma, and Vijay Kumar Bohat. "An improved cardiac arrhythmia classification using an RR interval-based approach". *Biocybernetics and Biomedical Engineering,* **2021**, *41(2),* 656-666. **(SCI IF = 5.687)**

7. **Jagdeep Rahul**, Marpe Sora, and Lakhan Dev Sharma. "Dynamic thresholding based efficient QRS complex detection with low computational overhead". *Biomedical Signal Processing and Control,* **2021,** *67(1),* 1-16. **(SCI IF= 5.076)**

8. **Jagdeep Rahul,** Lakhan Dev Sharma, and Vijay Kumar Bohat "Short duration vectorcardiogram based inferior myocardial infarction detection: class and subject-oriented approach". *Biomedical Engineering / Biomedizinische Technik,* **2021**, *66(5),* 489-501. **(SCI IF = 1.411)**

9. **Jagdeep Rahul**, Marpe Sora, and Lakhan Dev Sharma. "Exploratory data analysis based efficient QRS-complex detection technique with minimal computational load". *Physical and Engineering Sciences in Medicine*, **2021**, *43(3),*1049-1067. **(SCI IF = 7.099)**

10. **Jagdeep Rahul** and Lakhan Dev Sharma. "An enhanced T-wave delineation method using phasor transform in the electrocardiogram". *Biomedical Physics & Engineering Express,* **2021,** *7(4),* 1-9. **(Scopus/ESCI)**

11. **Jagdeep Rahul** and Marpe Sora. "Powerline interference removal technique using digital notch filter in ECG". *Advances and Applications in Mathematical Sciences*, **2021,** *20 (7),* 1269-1277. **(ESCI)**

12. **Jagdeep Rahul** and Marpe Sora. "A novel adaptive window-based technique for T wave detection and delineation in the ECG". *Bio-Algorithms and Med-Systems,* **2020**, *16(1),* 1-9. **(Scopus/ESCI)**

13. Kurmendra **Jagdeep Rahul**, and Rajesh Kumar."Micro-cantilevered MEMS biosensor for detection of malaria protozoan parasites". *Journal of Computational Applied Mechanics*, **2019**, *50(1),* 99-107. **(Scopus/ESCI)**

14. **Jagdeep Rahul**, Marpe Sora, and Lakhan Dev Sharma. "An overview on biomedical signal analysis". *Int J Recent Technol Eng*, **2019**, *7(5),* 206-209. **(Scopus)**

15. **Jagdeep Rahul** and Kurmendra. "Analysis of MEMS based micro-hot plate for gas sensor". Journal of Semiconductor Devices and Circuits, 2019, 6(2), 2455-3379.

16. Nang Anija Manlong, **Jagdeep Rahul**, and Marpe Sora. "ST segment analysis for early detection of myocardial infarction". *International Journal of Computer Sciences and Engineering*, **2018,** *6(6),* 1500-1504. **(UGC Listed).**

17. Chow Malapan Khamhoo, **Jagdeep Rahul**, and Marpe Sora. "Algorithm for QRS complex detection using discrete wavelet transform". International Journal of Electronics Engineering, 2018, 10(2), 352-357. **(UGC Listed)**

18. **Jagdeep Rahul**. "The impact of high-k gate dielectric on junctionless vertical double gate MOSFET". International Journal of Computer Sciences and Engineering, 2018, 6(6), 1475-1478. **(UGC Listed)**

19. Sumit Singh Saib, Shekhar Yadav, **Jagdeep Rahul**, Anurag Srivastava, and Balwindar Raj, "Impact of HfO2 in graded channel dual insulator double gate MOSFET". *Journal of Computational and Theoretical Nanoscience,* **2015,** *12*,

950-953. **(Scopus)**

20. Shekhar Yadav and **Jagdeep Rahul**. "Analysis of split gate technology for nanoscale double gate MOSFET devices." International Journal of Scientific Engineering and Technology, 2014, 3, 664- 665.

Research Publications (Conference Proceedings)/Invited Talks

1. 'loT, Intelligent Computing and Security: A Paradigm Shift (IICS-2021)', International Conference, held at G L Bajaj Institute of Technology and Management, Greater Noida, India, during 18-19 Dec, 2021.

   Title of the presentation: Disease detection in tomato leaves using raspberry pi-based machine learning model.

2. 'Control, Automation, Power and Signal Processing (CAPS - 2021)', IEEE International Conference, held at PDPM IIITDM, Jabalpur, India, during 11-12 Dec, 2021.

   Title of the presentation: Artificial intelligence enabled smart glove for visually impaired.

3. 'Smart Electronics and Communication (ICOSEC)', IEEE International Conference, held at Kongunadu College of Engineering and Technology, Trichy, India, during 10-12 Sept, 2020.

   Title of the presentation: Premature Ventricular Contractions Classification using Machine Learning Approach

4. 'Intelligent Computing and Smart Communication Technologies' International Conference, held at Anurag Group of Institutions, Telangana, India, during 26-27 July, 2019.

   Title of the presentation: Power line interference noise cancellation in ECG using Zero Phase IIR Notch filtering.

5. 'Internet of Things: Smart Innovation & Usages 2019' IEEE International Conference, held at Krishna Engineering College, Ghaziabad, Uttar Pradesh, India, during 18-19 April, 2019.

   Title of the presentation: Baseline correction of ECG using regression estimation method

6. 'Devices, Circuits and Systems (ICDCS)' IEEE International Conference, held at Karunya University, Coimbatore, India, during 15-16 March, 2012.

   Title of the presentation: Performance evaluation of junctionless vertical double gate MOSFET.

7. 'Devices, Circuits and Systems (ICDCS)' IEEE International Conference, held at Karunya University, Coimbatore, India, during 15-16 March, 2012.

   Title of the presentation: TCAD assessment of nonconventional dual insulator double gate MOSFET.

8. 'Materials for Advanced Technologies (NCMAT-2012)' National Conference held at ABV-IIIT Gwalior, Madhya Pradesh, India, during 28 Feb, 2012.

   Title of the presentation: Effect of metal gate electrode in Junctionless double gate vertical MOSFET.

9. Invited talk in 'Engineers Day Celebration', held at Arunachal Pradesh Engineering Service Association (APESA), India, during 15th Sept,2019.

   Title of the talk: Engineering for Change

Patent

1. **Jagdeep Rahul** and Marpe Sora: A system to detect premature ventricular contraction (PVC) using a machine learning algorithm, Patent No.- 202131020960, 2021(published).

2. Lakhan Dev Sharma, **Jagdeep Rahul**, and Vijay Kumar Bohat: Charging Station for Electric Vehicle, Application No.- 370012-001, 2022 (Design Registered).

Book / Book Chapter published

1. M Krishna Chaitanya, Lakhan Dev Sharma, Amarjit Roy, and **Jagdeep Rahul**: A Review on Artificial Intelligence for Electrocardiogram Signal Analysis, in *Big Data Analytics and Artificial Intelligence in the Healthcare Industry*, Eds. José Machado, Hugo Peixoto and Regina Sousa, IGI Global, USA, 2022, 38-72, 978-1-7998-9172-7.

2. **Jagdeep Rahul**, Lakhan Dev Sharma, Rishav Bhardwaj, and Ram Sewak Singh: Disease Detection in Tomato Leaves Using Raspberry Pi-Based Machine Learning Model, in *Lecture Notes in Electrical Engineering*, Rajeev Agrawal, Pabitra Mitra, Arindam Pal, and Madhu Sharma Gaur, Springer, Singapore, 2023, 425-434, 978-981-19-8136-4.

Research guidance

Ph.D. Scholars

1. **Mr. Amar Bahadur Biswakarma**

   Topic of research: Artificial Intelligence-Based Approach for Cardiac Arrhythmia Classification.

   Year of PhD degree: 2021- Ongoing

2. **Ms. Rita Garam**

   Topic of research: Design and Analysis of Cancer Detection Model using Deep Learning.

   Year of PhD degree: 2021- Ongoing

M. Tech. Thesis guidance

Number of M. Tech. thesis guided = **09**

Research Projects and Consultancy

1. **Co-Investigator:** Title of the Project: Risk and Protective Factors regarding Mental Health Concerns among Rural Youth: A Participatory Study in Mechuka, Arunachal Pradesh. Funding Agency: Mahatma Gandhi National Council of Rural Education, Ministry of Education, Govt. of India, **3 Lakhs**.

   Status: Ongoing

Course/Conference/Workshop   organized

1. National Seminar on Artificial Intelligence and Machine Learning: An Application Prospective by Department of ECE, Rajiv Gandhi University, Arunachal Pradesh,

India

Duration: 05/03/2020- 06/03/2020

Role: Convenor

2. Faculty Development Program on Digital Signal Processing by Department ECE and CSE, Rajiv Gandhi University, Arunachal Pradesh, India in collaboration with E&ICT, IIT Guwahati.

Duration: 30/04/2018 - 05/05/2018

Role: Co-Coordinator.

3. A Three-Day Trans-Disciplinary International Conclave on Universal Happiness in Post-Truth Era-Market, Media, Technology, and Global Well-Being: An Educational Perspective for Gen-Next by Rajiv Gandhi University, Arunachal Pradesh, India

Duration: 27/04/2022 - 29/04/2022

Role: Joint Co-ordinator

Reviewer for Reputed Journals

- IEEE Journal of Biomedical and Health Informatics
- Physiological Measurement
- Biocybernatics and Biomedical Engineering
- Computers in Biology and Medicine
- Physical and Engineering Sciences in Medicine
- BMC Medical Informatics and Decision Making
- Applied Artificial Intelligence
- Sensors
- Healthcare
- Scientific Reports
- Journal of Personalized Medicine
- Applied Sciences
- Behavioral Sciences
- Journal of the Institution of Engineers (B) (India)
- Bio-Algorithms and Med-Systems
- International Journal of Pervasive Computing and Communication

(**Dr. Jagdeep Rahul**)

RGU, Doimukh,

Date- 25-05-2023