

Dr. Agya Ram Verma



(Assistant Professor)

Department of Electronic & Communication Engg.

GBPEC Pauri, Garhwal

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Professional Experience

- Working as Assistant Professor in Electronic & Communication Engineering Department at **Rajasthan Institute of Engineering & Technology Jaipur** since Nov 2012 to 3 Aug 2013.
- Working as Assistant Professor (Contractual) in Electronic & Communication Engineering Department at **Govind Ballabh Pant Engineering College, Pauri (Garhwal)** is an Engineering Institute established by the Government of Uttar Pradesh in 1989. **Since 5 Aug 2013 to 19 April 2019.**
- Presently working as Assistant Professor (Regular) in Electronic & Communication Engg. Department at **Govind Ballabh Pant Engineering College, Pauri (Garhwal)** is an Engineering Institute established by the Government of Uttar Pradesh in 1989. **Since 20 April to till date.**

Education

PhD: awarded in (January 2019)

Obtain marks: 80.8%

Topic of PHD

“Filter Design Using Evolutionary Technique for Biomedical Signal Application”

GB Pant Engineering College Pauri Garhwal Uttarakhand

M.Tech in Electronics and Communication Engineering (January 2011-Nov 2012)

Indian Institute of Information Technology, Design and Manufacturing Jabalpur, India

Obtain marks: 78%

Elective: Matlab Software and VHDL, Altium software, Microprocessor kit 8085, 8086.

Projects

- Speech Enhancement using different window, different transform and different technique. (M.Tech thesis Topic).

B.Tech in Electronics and Instrumentation Engineering (July 2006- June 2010).

IET Rohilkhand University Bareilly, Uttar Pradesh.

CGP- 7.66

Gate 2010 all India rank 2191

Research Interest

- Multirate Signal Processing
- Filter and Filter Bank Design
- Multirate Techniques for Communication Systems
- ECG Signal Processing and Analysis
- Biomedical signal processing

Scholarship achievements

Ministry of Human Resource Development (MHRD) fellowship during M.Tech at IIT Jabalpur

- **Sponsored Research project ongoing:**

S.No	Title Project	Amount	Period	Sponsored By
1	Estimation of Heart rate Variability (HRV) Feature index and its classification	Rs.1,50000/--	1 year	MHRD from Uttarakhand Technical University TEQIP-III
2.	Artificial Intelligence and Machine Learning using Python	Rs. 93000/--	5 days	AICTE Training and Learning (ATAL)

- **Other Academic Achievements**

- Bentham Open AMBASSADOR (2019-2020)

Reviewer

- **Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization (Taylor & Francis), Scopus index**
- **IET Generation, Transmission & Distribution, SCI index**
- **International Journal of Signal and Imaging Systems Engineering (IJSISE), Scopus index**
- **Journal of Intelligent & Fuzzy Systems, SCI index, IOS Press**

- GUCON 2019 IEEE Conference, India
- Signal processing journal, SCI index, Elsevier
- Electronics Letters, IET, SCI index, journal

Projects/Dissertations Supervisions

S.No	Name	Roll No	Degree	Thesis Title
1	Chitra Bhandari		PHD	Biomedical signal processing
2	Sandeep Kumar		PHD	HRV ECG Signal

M.Tech Dissertations

S.No	Name	Roll No	Degree	Thesis Title
1.	Nidhi Lakhera	185101	M.Tech	ECG Signal Enhancement Using MCS
2.	Shubham Kumar	185102	M.Tech	QMF design using MCS for Biomedical Image
3.	Chitra Bhandari		M.Tech	Biomedical Image Encryption Based on Fractional Discrete Cosine Transform with Singular Value Decomposition and Chaotic System
4.	Akshat Barthwal	165101	M.Tech	Digital watermark using lifting wavelet transform
5.	Jyotsna Bandari	165107	M.Tech	Satellite image enhancement using type-2 fuzzy logic
6.	Kulbeer Singh Negi	145104	M.Tech	Removing ECG Noise using ATNF based on wavelet Transform.
7.	Vivek Joshi	135110	M.Tech	ECG signal Enhancement using adaptive filter based on MPSO
8.	Visu Agrwal		M.Tech	Speech Enhancement Using Different Transform based on QMF
9.	Avinash Verma		M.Tech	Design of Filter Bank for Speech Processing
10.	Rakesh Motaka		M.Tech	Diabetes Mellitus Forecast using ANFIS & Principal Component Analysis

B.Tech Project:

Name of student

Title of thesis

Vikash
Vishakha
Silipi
Swati

ECG Compression using Modified LPC

ECG Compression using QLV

Mohini(1201034)
Himani (1201026)
Ruchi Arya (1201049)
Surbhi Tayal (1207451)

Tumor detection using region scale and PSO

Aayushi Tomar(1201002)
Akanksha Negi (1201010)
Sefali Goswamy (1201056)
Shivika Goyal (1201059)

Design ANC filter based on Evolutionary technique

Software Skills

- Python Language.
- Operating Systems: Microsoft Windows, Linux.
- Application Software: MATLAB.
- Application Altium Software.

Other Achievements

- ✓ Workshop Multivariate Analysis Matrix Method Organized by DST CIMS.
- ✓ Workshop “Emerging Technologies and soft computing techniques for combating climate change and sustainable development, Nov 11-15, 2019.
- ✓ Workshop “Antenna: Design, Fabrication & Measurement Techniques” from November 25th to 29th, 2019.
- ✓ Workshop “Machine Learning for Computer Vision” jointly organized by Electronics and ICT Academies during June 29 - July 8, 2020 under the “Scheme of financial assistance for setting up of Electronics and ICT Academies” of the Ministry of Electronics and Information Technology (MeitY), Government of India.
- ✓ FDP on “Recent Research Trends in Electronics and Communication Engineering” from 18th Aug to 28 Aug 2020 Organized by ECED, GBPIET Pauri, Uttarakhand.

Subject Taught: Machine Learning (PG Level)

Python Language (UG Level)

VHDL (UG Level)

Analog Communication (UG Level)

Signal Compression (PG Level)

Optimization Techniques (PG Level)

Research Papers

International Journal:

1. Avinash Verma, A. R. Verma and Manoj Kumar, "Filter Design For 2-D Speech Enhancement based on Curvelet Transform using Different Window Functions", *International Journal of Computer Application*, 81(13):1-4, Nov. 2013.
2. A. R. Verma, Y Singh "Removing ECG noise from EMG signal Using Adaptive Artifact Canceller based on Modify Cuckoo Search Algorithm", *Journal of Basic and Applied Research International*, 19(2): 91-98, 2016, ISSN: 2395-3438.
3. A. R. Verma, Y Singh and Vivek Joshi: "Adaptive Filtering using PSO, MPSO and ABC Algorithms for ECG signal" , *Int. J. Biomedical Engineering and Technology*, Vol. 21, No. 4, 2016, pp. 379-391, ISSN 1752-6426,
4. Shivika Goyal, Shefali Goswamy, Akanksha Negi, Aayushi Tomar, A. R. Verma, Y. Singh, "Design of ANC Filter Using Modified Cuckoo Search Technique for ECG Signal Enhancement", *ELSEVIER Journal-Perspectives in Science*, doi: 10.1016 /j.pisc. 2016. 03. 002, ISSN : 209-0213.
5. A. R. Verma, Y Singh "Adaptive Artifcat Cancellation Based on Bacteria Foraging Optimization for ECG Enhancement" *Augmented Human Research (Springer) (2019)*, Vol. 3(3), 2019, pp.1-8, <https://doi.org/10.1007/s41133-019-0014-5>
6. Verma, A.R. and Singh, Y. (2017) 'Optimisation of two-channel QMF bank using modified cuckoo search technique for biomedical image applications', *Int. J. Biomedical Engineering and Technology*, Vol. 24, No. 1, pp.90–102.
7. A. R. Verma, Y Singh and B Gupta "Adaptive Filtering Method for EMG Signal using Bounded Range Artificial Bee Colony Algorithm" *Biomedical Engineering letter*, springer, <https://doi.org/10.1007/s13534-017-0056-x>.
8. A. R. Verma, Y Singh "Design of Multi-Channel Cosine-Modulated Filter Bank Using Bacterial Foraging Optimization Algorithm" *IETE Journal of Education* Vol. 59, No. 1, pp.39–50, 2018, <https://doi.org/10.1080/09747338.2018.1483744>
9. A. R. Verma "Design of 2D adaptive noise filter using MPSO algorithm for filtering biomedical image" *Augmented Human Research (Springer) (2019)*, <https://doi.org/10.1007/s41133-019-0017-2>.
10. A.R.Verma "Neuromuscular Disorder Detection using EMG Signals Based on TQWT Features" *Augmented Human Research (Springer)*, DOI: 10.1007/s41133-019-0020-7.

11. A. R. Verma, "Design Spline adaptive filter with fractional-order adaptive technique for ECG signal enhancement" *Augmented Human Research (Springer) (2019)*, DOI: 10.1007/s41133-019-0022-5.
12. A.R.Verma, "Design BR-ABC Algorithm Based Fuzzy Logic of Glucose Detection" *Augmented Human Research (Springer) (2019)*, <https://doi.org/10.1007/s41133-019-0026-1>.
13. A.R.Verma "A novel approach for classification of ECG beats based on Gray wolf optimization multiclass support vector machines classifier" *Augmented Human Research (Springer) (2019)*, (<https://doi.org/10.1007/s41133-019-0027-0>).
14. A. R. Verma "A Novel Approach Adaptive Filtering Method for EMG Signal using Gary Wolf Optimization Algorithm", *SN Applied Sciences (SNAS), (Springer) (2019)*, doi: 10.1007/s42452-019-1823-3.
15. A.R.Verma "A Comparative Study of ECG Signal Heart Rate Variability Classification Based on Different Machine Learning Algorithms", *Augmented Human Research (Springer) doi:10.1007/s41133-020-00036-w*.
16. Verma A. R, Kumar M. "A Novel Approach of QMF Bank Using Modified PSO Technique for Biomedical Image Applications". *Biomed Pharmacol J* 2020;13(1).
17. A.R.Verma "A Novel Approach for Electrocardiogram Signal Classification Using Wavelet Optimization" *International Journal of Bio-Inspired Computation (IJBIC)*, (2020), (Accept).
18. A R Verma, Ranjeet Kumar, Pushkar Praveen, anil kumar "A novel approach for classification of ECG beats based on flower pollination algorithm with compact multiclass support vector machines classifier" *Multimedia Tools and Applications journal Springer (2020)*, (Accept).
19. Ranjeet Kumar, Agya Ram Verma, Manoj Kumar Panda, Papendra Kumar, "HRV Signal Classification for Arrhythmia based on Multiresolution Analysis using Descriptive measures " *Computers in Biology and Medicine, journal Elsevier (2020)*, (Accept).
20. Ranjeet Kumar, Agya Ram Verma "Dual-Tree Sparse Decomposition of DWT Filters for ECG Signal Compression and HRV Analysis", *Augmented Human Research (Springer) (2020)*, under review,
21. Agya Ram Verma, Ranjeet Kumar, Anil Kumar and Surjeet Singh Patel "A Novel Approach of EMG Signals Classification Using MCS optimized SVM for Diagnosis of Neuromuscular Disorders" (2020), (*Traitement du Signal (TS)*).
22. Ranjeet Kumar, Agya Ram Verma, Sandeep Kumar and Anil Kumar "An effective Technique using MRA Analysis based on WPD for ECG Signal Compression" (2020), (*Applied Acoustics*).

International Conference:

1. A. R Verma, R. K. Singh, and A. Kumar, "An Improved Method for Speech Enhancement Base on 2D-DWT Using Hybrid Weiner Filtering", 2012 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC), ISBN: 978-1-4673-2481-6, pp: 343-348, 18th -19th December 2012.
2. A. R Verma, R. K. Singh, and A. Kumar, "An Improved Method for Speech Enhancement Based on Ridgelet Transform", 4th IEEE International Conference intelligent systems modeling and simulation (ISMS) 2013, ISBN: 978-1-4673-5653-4, pp No 280 - 285.
3. A. R Verma, R. K. Singh, and A. Kumar, "A Comparative Study of Performance of Different Window Functions for Speech Enhancement", International Conference on Soft Computing for Problem Solving, Springer ISBN: 978-81-322-1601-8.
4. Rakesh Motka, V.Parmal, B. Kumar, and A. R. Verma "Diabetes Mellitus Forecast using Different Data Mining Techniques", IEEE, 4th International Conference on Computer & Communication Technology, PP : 99 - 103, ISBN: 978-1-4799-1569-9, 2013.
5. A. R. Verma Y Singh and A K Gautam, "A Comparative Study of Different Transform and ANFIS" 1st International Conference on Advances in Computing and Communication (ICACCE- 2014).
6. A. R. Verma, B S Ghugtyal, Y Singh and Vivek Joshi, "An Optimization Technique for QMF Based on Modified Particle Swarm", pp: 666 – 669, IEEE. ISBN: 978-1-4799-5990-7.
7. A. R. Verma and Y Singh: "Adaptive Tunable Notch Filter for ECG Signal Enhancement" 3rd ICRTC 2015 Elsevier 7 (2015) 332 – 337, ISSN: 1877-0509.
8. Vivek Joshi, A. R. Verma and Y Singh: "De-noising of ECG signal using Adaptive Filter based on MPSO" 3rd ICRTC 2015 Elsevier 7 (2015) 395-402, ISSN: 1877-0509.
9. Kumar S, Jha RK, Sharma R, Verma A, Singh Y (2018) A robust sharing based encryption method in singular value decomposition domain using fractional Fourier transform. In: 2018 8th International Symposium on Embedded Computing and System Design (ISED). IEEE, pp 135–140.
10. Sumit Singh, Rajib Jha, Rytham Sharma, M A Rahman, Neha Bisht, Sreya Sinha, Agya Ram Verma and Yashvir Singh. Robust Secret Sharing for Image Encryption in Fractional Fourier Transform Domain," *2019 International Conference on Computing,*

Power and Communication Technologies (GUCON), NCR New Delhi, India, 2019, pp. 497-502.

11. Chitra Bhandari, Sumit Kumar, Sudha Chauhan, M. A. Rahman, Gaurav Sundaram, Rajib Kumar Jha, Shyam Sunder, Agya Ram Verma and Yashvir Singh "Biomedical Image Encryption Based on Fractional Discrete Cosine Transform with Singular Value Decomposition and Chaotic System," *2019 International Conference on Computing, Power and Communication Technologies (GUCON)*, NCR New Delhi, India, 2019, pp. 520-523.
12. Kumar R., Verma A.R., Panda M.K., Kumar P. (2020) HRV Signal Feature Estimation and Classification for Healthcare System Based on Machine Learning. In: Bhattacharjee A., Borgohain S., Soni B., Verma G., Gao XZ. (eds) *Machine Learning, Image Processing, Network Security and Data Sciences. MIND 2020. Communications in Computer and Information Science*, vol 1241. Springer, Singapore, DOI https://doi.org/10.1007/978-981-15-6318-8_36.
13. A.R.Verma, Pushkar Praveen and Surjeet Singh Patel, "A Comparative Study of Robust Image Watermarking Using DCT Transform with Windowing Technique". "Smart, Machine Intelligence and Real-Time (SMART) Computing (CRC Press ([Taylor & Francis](#)))". The conference is scheduled for 26 - 27 June 2020.
14. A.R.Verma, Pushkar Praveen and Surjeet Singh Patel, "Dark and Low Contrast Satellite Image Enhancement using DWT-SVD Based on Fuzzy Logic Technique". "Smart, Machine Intelligence and Real-Time (SMART) Computing (CRC Press ([Taylor & Francis](#)))". The conference is scheduled for 26 - 27 June 2020.
15. Chitra Bhandari, A.R.Verma, "PQRST Difficult Revealing Based on WOA for Measurement of HRV". "Smart, Machine Intelligence and Real-Time (SMART) Computing (CRC Press ([Taylor & Francis](#)))". The conference is scheduled for 26 - 27 June 2020.
16. Ranjeet Kumar, Agya Ram Verma, Manoj Kumar Panda & Papendra Kumar, "ECG Signal Compression using Dual-Tree Sparse Decomposition of DWT Filters and HRV Analysis". "Smart, Machine Intelligence and Real-Time (SMART) Computing (CRC Press ([Taylor & Francis](#)))". The conference is scheduled for 26 - 27 June 2020

WORKSHOP(S)/International Conference ORGANIZED

- Co-coordinator, One Week Workshop On "Advances in Image Processing and Soft Computing Techniques" during 20-24 February 2017.
- Co-coordinator, One Week Workshop on "Application of Machine Learning" during 20th to 24th March 2017.
- Coordinator: one week Workshop on "FPGA AND MENTOR GRAPHICS TOOLS" during 10th to 14th Oct 2019.

- Co-coordinator: one week Workshop on “Antenna: Design, Fabrication & Measurement Techniques” from November 25th to 29th, 2019.
- Coordinator: one week International Workshop on “Deep Learning & Computational Intelligence in Internet Era” during 27th to 31th July 2020.
- Organized Secretaries “International Conference on "Smart, Machine Intelligence and Real-Time (SMART) Computing (CRC Press ([Taylor & Francis](#)))". The conference is scheduled for 26 - 27 June 2020.
- Coordinator: Two week International Workshop on "Recent Research Trends in Electronics and Communication Engineering” during 18th Aug to 28 Aug 2020”.
- Coordinator: one week International Workshop on "Artificial Intelligence and Machine Learning using Python” during 31st Aug to 4th Sep. 2020.
- Coordinator: Workshop “One week Hands on Matlab and python application”.

Other Responsibility

- M.Tech: Co-ordinator from August 2019 to till date
- Oic of Lab: Machine Learning Lab
- Hostel warden from 19 September 2019 to till date

Reference:

1. Professor Aprajita Ojha (Professor)
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2. Dr Rajib Kumar Jha (Associate Professor)
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