

Dr Omkar Singh

Assistant Professor
Department of ECE
National Institute of Technology Srinagar
Hazratbal Kashmir-190006 (J&K)

Education

Ph. D – "Empirical wavelet transform based multimodal bio-signal analysis for cardiovascular health monitoring" — 2014 – 2018
Department of Electronics and Communication Engineering
National Institute of Technology, Jalandhar, -144011

M. Tech – Electronics and Communication Engineering — 2008 - 2010
National Institute of Technology, Jalandhar-144011

B. E - Electronics and Communication Engineering — 2004 - 2008
Govt. College of Engineering and Technology, Jammu
University of Jammu

12th – Non –Medical — 2003
Govt Higher Secondary School (Boys) Kishtwar, J&K
J&K Board of School education

10th — 2000
Govt Higher secondary School, Paddar Kishtwar, J&K
J&K Board of School education

Other Qualifications

Qualified GATE in 2008, 2010 and 2012

Research Interests

Digital Signal Processing and its applications, Biomedical Signal processing, Wavelets and filter banks

Journal Publications

1. Omkar Singh, "Physiological Time Series Processing via Empirical Wavelet Transform", Advanced Science, Engineering and Medicine 12 (5), 582-587, 2020
2. Omkar Singh and Ramesh Kumar Sunkaria, "A Unified Approach for Heart Rate Estimation from Electrocardiogram and Arterial Blood Pressure Pulses", Advanced Science, Engineering and Medicine 12 (5), 588-592, 2020
3. Omkar Singh and Ramesh Kumar Sunkaria, "A new approach for identification of heartbeats in multimodal physiological signals", Journal of Medical Engineering & Technology 42 (3), 182-186, 2018
4. Omkar Singh and Ramesh Kumar Sunkaria, "An empirical wavelet transform based approach for multivariate data processing application to cardiovascular physiological signals", Bio-Algorithms and Med-Systems 14 (4), 2018
5. Omkar Singh and Ramesh Kumar Sunkaria," ECG Signal Denoising via Empirical Wavelet Transform", Australasian Physical & Engineering Sciences in Medicine (Springer) Vol. 40, No. 1, pp. 219–229, 2017
6. Omkar Singh and Ramesh Kumar Sunkaria, "Heartbeat detection in multimodal physiological signals using signal quality assessment based on sample entropy", Australasian Physical & Engineering Sciences in Medicine (Springer), Vol. 40.No. 4, pp. 917-923, 2017
7. Omkar Singh, Ramesh Kumar Sunkaria, "Detection of onset, systolic peak and dicrotic notch in arterial blood pressure pulses", Measurement and Control (SAGE) 2017; Vol. No.7, pp. 170-176, 2017
8. Omkar Singh, Ramesh Kumar Sunkaria, A new approach for identification of heartbeats in multimodal physiological signals', Journal of Medical Engineering & Technology (Taylor and Francis) Vol. 42, pp. 182-186, 2018
9. Omkar Singh and Ramesh Kumar Sunkaria, "Empirical Wavelet Transform Based Delineator for Arterial Blood Pressure Waveforms", Bio-Algorithms and Med-Systems (Degruyter), Vol. 12, No. 2, pp. 61-66. 2016
10. Omkar Singh and Ramesh Kumar Sunkaria, 'Powerline Interference Reduction in ECG Signals using Empirical Wavelet Transform and Adaptive Filtering,' Journal of Medical Engineering & Technology (Taylor and Francis) Vol. 39, No. 1,pp 60–68, 2015.
11. Suraj Kumar Bhati, Omkar Singh and Ramesh Kumar Sunkaria, "Beat detection algorithm for ECG and arterial blood pressure waveforms using empirical mode decomposition: a unified approach", Int. J. Signal and Imaging Systems Engineering (Inderscience Publishers) ,Vol. 8, No. 1, pp. 68–79, 2015
12. Sonali Jha, Omkar Singh and Ramesh Kumar Sunkaria, "Modified approach for ECG signal denoising based on empirical mode decomposition and moving average filter", Int. J. Medical Engineering and Informatics (Inderscience Publishers), Vol. 6, No. 2, pp.165–188, 2014
13. Omkar Singh, Ramesh Kumar Sunkaria, "A robust R-peak detection algorithm using wavelet packets", International Journal of Computer Applications, Vol. 36, No. 5, pp. 37-43, 2011

14. Umakanta Parida, Sunil Kumar, Omkar Singh, "Analysis of Channel Coding in fading Channels for MIMO Systems", International Journal of Computer Applications, Vol.27, No.(4), pp. 8-12, 2011

Conference Presentations and Posters

1. Sonali, Omkar Singh, Ramesh Kumar Sunkaria, "ECG signal denoising based on Empirical Mode Decomposition and moving average filter,", 2013 IEEE International Conference on Signal Processing, Computing and Control (ISPCC) , 26-28 Sept. 2013, JUIT Noida (Published in IEEE Explore)
2. Omkar Singh, Ramesh Kumar Sunkaria "Onset Detection in Arterial Blood Pressure pulses using Empirical Wavelet Transform" 9th INDIACom 2nd international conference on computing for sustainable global development, BVICAM New Delhi, India 11-13 March 2015 (Published in IEEE Explore)
3. Omkar Singh, Ramesh Kumar Sunkaria "The utility of wavelet packet transform in QRS complex detection- A comparative study of different mother wavelets" 9th INDIACom 2nd international conference on computing for sustainable global development, BVICAM New Delhi, India 11-13 March 2015 (Published in IEEE Explore)
4. Omkar Singh, Ramesh Kumar Sunkaria, Arun Khosla, "A real time QRS detection algorithm using wavelet packets", In proceedings of 4th IEEE international conference on advanced computing and communication technologies (ICACCT), Panipat, India. pp.737, October 30, 2010
5. Omkar Singh, Ramesh Kumar Sunkaria, Umakanta Parida, "A comparative study on R-peak detection with various wavelet functions ",In Proceedings of International conference on biomedical engineering and assistive technologies(BEATS), Jalandhar, India, pp. 47, December 17-19, 2010.

International Conferences Attended

- 4th IEEE International Conference on Advanced Computing and Communication Technologies, October 30, 2010, APIIT Panipat, India.
- International Conference on Biomedical Engineering and Assistive Technologies, 17-19 December 2010, NIT Jalandhar, India.
- INDIACom 2015, 2nd International Conference on Computing for Sustainable Global Development, 11-13 march 2015, (BVICAM) New Delhi, India

Courses Taught at UG/PG Level

Advanced Digital Signal Processing (PG course)
Adaptive Signal Processing (PG course)
Multirate Systems and Wavelets (PG course)
Digital Signal Processing (UG Course)
Signals and Systems (UG Course)
Analog Systems and Applications (UG Course)

Digital Electronics (UG Course)
Microprocessors and Microcontroller (UG Course)
Basic Electrical Engineering (UG Course)
Antenna Engineering (UG Course)

Short Term Courses Organised

1. TEQIP – III Sponsored One week short term course on "Biomedical Signal and Image Processing: Contemporary Methods and Applications" (29 July- 02 Aug 2019) NIT Srinagar

2. TEQIP – III Sponsored One week short term course on "Communication System Design" (01 July-05 July 2019) NIT Srinagar

Reviewer of International Journals

- Biomedical Signal Processing and Control
- Fluctuation and Noise Letters
- Bio-Algorithms and Med-Systems
- IET Science, Measurement and Technology
- Journal of the Chinese Institute of Engineers
- Optical and Quantum Electronics

Employment History

1.	Assistant Professor in the Department of Electronics and Communication Engineering DAV University Jalandhar, India	August 1, 2014 – Oct 13, 2018
2.	Assistant Professor in Department of Electronics and Communication Engineering Lovely Professional University Jalandhar, India	July 23, 2010 – July 31, 2014

Permanent Address

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Tehsil: Atholi Paddar
District: Kishtwar
J&K - 182204