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Dept. of Instrumentation Engineering
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PERSONAL DETAILS

Date of Birth: 16th April, 1979

Gender: Female

Marital Status: Married

EDUCATION**Ph.D,**

Biomedical Signal Processing and its Applications,
Department of Electrical Engineering,
Indian Institute of Technology Roorkee, Roorkee-247667,
Uttarakhand, India

- Thesis Topic: ECG based Human Identification and Authentication
- Supervisors: Dr. Ambalika Sharma and Prof. G. K. Singh
- Thesis status: Ph.D Degree awarded on October 2024.
- Class/Grade : ‘A’

M.Tech,

- Instrumentation and Signal Processing, 2012
Indian Institute of Technology Roorkee, Roorkee-247667,
Uttarakhand, India
- CGPA: 8.61/10

B.E,

- Instrumentation Engineering, 2002
Jorhat Engineering college, Jorhat,
Dibrugarh University,
Assam,
- Class/Grade-1st Class

PUBLICATIONS**❖ JOURNALS**

[1] Ritu N Begum and Ambalika Sharma, “**ANN Based ECG Classification**”, *International Journal on Science and Technology, (IJSAT)* Volume II, Issue II, 2012 Jan – March, pp.296-302.

- [2] Ritu N Begum and Ambalika Sharma, “**Wavelet based Feature Extractor and Ann based Classifier for Optimal ECG Interpretation**”, *International Journal of Electrical and Electronics Engineering, (IJEET)* Volume. 2 Issue. 2,3,4, Jan 2013, pp.115- 118.
- [3] R. N. A. Begum, A. Sharma and G. K. Singh “**ECG Based Reliable User Identification Using Deep Learning**”, *International Journal of Biomedical and Biological Engineering*, Volume 16, Year 2022, Pages 66-75.
- [4] Nayanika Das, Barnali Goswami and Ritu Nazneen Ara Begum, “**A Machine Learning Approach for Load Forecasting**” *Empirical Economics Letters*, Volume Special Issue, Year 2023, Pages 252-269.
- [5] Ajaan Anubhav Borah, Ritu Nazneen Ara Begum and Barnali Goswami, “**Health Assessment and Lifespan Estimation for Power Transformer using Machine Learning**”, *International Journal of Scientific and Research Publications*, Volume 14, Issue 4, April 2024, ISSN 2250-3153, doi: 10.29322/IJSRP.14.04.2024.p14812.
- [6] R. N. Begum, A. Sharma and G. K. Singh, “**An Ensemble Model of DL for ECG-based Human Identification**”, *IEEE Transactions on Instrumentation and Measurement*, 2024 Apr 9, doi: 10.1109/TIM.2024.3385842.
- [7] R. N. A. Begum, A. Sharma and G. K. Singh, “**Towards Increasing Performance Rate with Minimized Dataset in ECG-Based Human Identification**”, *IETE Journal of Research*, 19 May 2024, doi: 10.1080/03772063.2024.2352640.

❖ CONFERENCES

- [1] R. N. A. Begum, A. Sharma and G. K. Singh, "Using ECG as Biometric Trait: Approaches based on Variant CNN Architectures," *12th International Conference on Electronics, Computers and Artificial Intelligence (ECAI) 2020*, June 25 – June 27, 2020, Bucharest, Romania, pp. 1-6, doi: 10.1109/ECAI50035.2020.9223220.
- [2] R. N. A. Begum, A. Sharma and G. K. Singh, “**ECG Based Reliable User Identification Using Deep Learning**”, *XV. International Conference on Biomedical Signal and Image Processing, ICBSIP 2021*, December 20-21, 2021, Istanbul, Turkey.
- [3] R. N. Begum, A. Sharma and G. K. Singh, “**Revocable ECG Key for User Authentication**,” *South Asian Research Center (SARC) International Conference on Robotics, Machine Learning and Artificial Intelligence (ICRMLAI) 2024*, 18th May, 2024, Dispur, India.
- [4] R. N. Begum, A. Sharma A, G. K. Singh, “**A Hybrid Model using Fire Module for ECG-based Human Identification**”, *International Conference on*

Intelligent Informatics and Biomedical Sciences (ICIIBMS) 2024, Tokyo, Japan.

[5] Nayanika Das, Barnali Goswami and Ritu Nazneen Ara Begum , “**Stock Prices Prediction Using Long Short Term Memory**” *4th International Conference on Computing and Communication Systems (I3CS)*, Volume , Year 2023, Pages 1-5.

[6] Ajaan Anubhav Borah, Ritu Nazneen Ara Begum and Barnali Goswami, “**Unveiling the Secrets of Healthy Power Transformer: A XAI Approach**”, *DST-SERB Sponsored International Conference on Devices, Sensors and Systems (CoDSS)*, 10th-11th February 2024, Tezpur University, Assam.

[7] Tanmay Saikia and Ritu Nazneen Ara Begum , "**Machine Learning based Epilepsy detection Approach** ", *4th International Conference on Modeling, Simulation and Optimization CoMSO 2024*, 16 – 18 November, 2024.

RESEARCH INTERESTS	Biomedical signal processing, Machine learning, and Applications of machine learning in biomedical signal.
TEACHING EXPERIENCE	18 years
ADMINISTRATIVE RESPONSIBILITIES	<ul style="list-style-type: none">• Worked as NBA coordinator for Instrumentation Engineering in AEC.• Nodal officer at JEC for Virtual Lab IIT Roorkee funded by Ministry of Education, New Delhi (Under NMEICT).• Member of Board of Studies (BOS) for Instrumentation Engineering of ASTU.
ACHIEVEMENTS	<ul style="list-style-type: none">• Best Paper Award for the Paper entitled “ANN Based ECG Classification” at the National Conference on Technology and Management, Gujarat, Jan 20-21, 2012.• Young Investigator Award for the Paper entitled “Wavelet based Feature Extractor and Ann based Classifier for Optimal ECG Interpretation” at International Conference on Electrical and Electronics Engineering, (ICEEE), Mysore , June 30th 2012.