Ritujoy Biswas

Ph.D. Scholar

(Research Domain - Speech Processing)

Swami Bhawan Locality
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LinkedIn Profile

Career Objective

As a multi-disciplinarian and enthusiastic researcher, I aim to solve problems that span various overlapping domains, and through it, continually enhance my knowledge and expand my skill set.

Education

2023 **Indian Institute of Technology Jammu**, *Doctorate in Philosophy*, Department of Electrical Engineering, 8.88/10.

2019 **Graphic Era Deemed to-be University, Dehradun**, *Bachelor of Technology, Electronics and Communication Engineering*, 8.97/10.

2014 **St. Joseph's Academy, Dehradun**, *Indian School Certificate*, PCMBE, 89%.

Technical Skills

Coding Python, NLP, C, C++, Data Structures, Assembly(8085 & 8086)

Tools MATLAB, Jupyter, Mathematica, Cadence Virtuoso, CodeBlocks, Arduino, Atmel Studio

Simulation App Designer(MATLAB), Simulink, OrCad, ISIS Proteus

O.S. Linux, Windows

Other Git, LaTeX

Technical Projects

Apr 2021 **Naïve Bayes Language Classifier using Speech Spectral Features**, *PhD 2nd Sem Project*.
Using a labelled data set to train a Naïve Bayes classifier to recognize a particular language based on extracted spectral features. Code built in Python 3.

Aug 2018 – July 2019 **Modelling of Diabetes Mellitus Type-2 using Molecular Communication**, *B.Tech Thesis*.
Application of Molecular Communication to Model the Pathological Condition of Diabetes Mellitus Type II, for effective treatment using a Targeted Drug Delivery Mechanism.

Feb 2018 – May 2018 **Adaptive Huffman Compression - Algorithm and Code**, *B.Tech 3rd Year Project*.
Developed a functional code for adaptively compressing textual data in C by accounting the entropy of the characters already encountered.

July 2017 – Dec 2017 **Management of Incoming Satellite receiver Data**, *project GAGAN, ISRO*.
Converting the received data file into spreadsheet with relevant data fields with simple real-time calculations for estimation of accurate elevation angles of transmitting Satellite. Code written in C

Feb 2017 – May 2017 **RF-based Wireless Vehicle prototype**, *B.Tech 2nd Year Project*.
Radio Frequency based Wirelessly Controlled Vehicle integrating RF and Motor segments

Publications

May 2023	**Near-end Intelligibility Improvement Through Voice Transformation in Transfer Learning Framework**, *Eurasip, EUSIPCO.*
Oct 2022	**Optimal Speech Intelligibility Improvement for Varying Car Noise Characteristics**, *JSP, Springer-Nature.*
June 2022	**Optimal Near-end Speech Intelligibility Improvement using CLPSO-based Voice Transformation in Realistic Noisy Environments**, *CSSP, Springer-Nature.*
Dec 2021	**Bypassing Optimization Complexity through Transfer Learning & Deep Neural Nets for Speech Intelligibility Improvement**, *NLPAI, ICON.*
July 2021	**Speech Intelligibility Enhancement using an Optimal Formant Shifting Approach**, *ISPA.*
June 2021	**Transfer Learning for Speech Intelligibility Improvement in Noisy Environments**, *ISCA, INTERSPEECH.*
Nov 2016	**Variation in Extinction Cross Section of Rain Drops with Temperature**, *IEEE, ICETCT.*
Nov 2016	**Frequency Scaling of Slant Path Rain Attenuation for Fade Mitigation in Satellite Communication**, *IEEE, ICETCT.*

Internships

June-July 2017	**Bharat Electronics Limited, Kotdwara**, *Vocational Trainee.* Training at the Assembly Line with prime emphasis on Surface Mounting Technology and SMT Machines.
June-July 2018	**Bharat Heavy Electricals Limited, Haridwar**, *Summer Intern.* Computerised Numerical Control Machine Maintenance Section.

Achievements

Aug 2022	**Prime Minister's Fellowship for Doctoral Research**, *SERB-FICCI,* Initiative to Promote Industry Relevant R&D with Academia(IIRRADA), Selected for the Prestigious PMFDR Scheme.
Feb 2022	**A day Workshop on Social Relevance of Research**, *Dept. of Electrical Engineering*, IIT Jammu, - Awarded 1st prize for Best Application Proposal.

Competency Certifications and Workshops

July 2022	**Course on Speech and Audio Processing**, *Global Initiative of Academic Network*, IIT Dharwad.
May 2022	**Industry-Academia Conclave**, *IIT Jammu.*
Apr 2022	**Fundamentals of Accelerated Data Science with RAPIDS**, *NVIDIA DLI.*
Sep 2021	**Deep Learning-Based Speech Processing Techniques for Smart Health & Education Systems - Concepts, Recent Trends & Challenges**, *Technology Innovation Hub*, IIT Patna.
Mar 2021	**AI in Healthcare**, *Department of Electrical Engineering*, IIT Jammu & IIT Kanpur.
Feb 2018	**Wireless Sensor Networks**, *ECE Dept., GEU.*
July 2017	**Internet of Things**, *FICE*, Intel.
Aug-Nov 2016	**Basics of Remote Sensing, GIS and GNSS**, Indian Institute of Remote Sensing.
Jan-Feb 2016	**Robotics using AVR**, CETPA Infotech.

References

1.) **Dr. Karan Nathwani**, *Assistant Professor.*
Dept. of Electrical Engineering, Indian Institute of Technology Jammu.
karan.nathwani@iitjammu.ac.in

2.) **Dr. Md. Irfan Ul Hasan**, *Head of Department.*
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