REHAN AHMAD – PhD (Machine Learning)

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PROFILE

Comprehensive research and development experience in Machine Learning/ Deep learning specifically in audio-visual speaker diarization system. Handy experience in Python using deep learning frameworks; Pytorch, Keras and Tensorflow. Experienced in numerical computations, optimization, handling data sets, normalization, cleaning, standardization & visualization. Previous experience in FPGAs, Microcontrollers, Verilog, C# and C/C++.

EXPERIENCE

Lecturer

March 2014-Present
International Islamic University Islamabad.
Teaching courses; Digital System Design, Digital Signal Processing, Probability and Random Variables and Linear Algebra. Member of Machine learning research group with activities in audio-visual speaker diarization system. Member Research Committee for managing research database.

Professional Developer

May 2012-Jan 2014
Vision Imaging & Signal Processing Research Group (VISPRO).
School of Electrical Engineering and Computer Science (SEECS) NUST Islamabad.
http://vispro.seecs.nust.edu.pk/
Development of Multi View Imaging (MVI) for panoramic view generation system; Responsible for FPGA based hardware development of panoramic view generation system using multiple real-time camera streams. Project includes hardware development of computer vision algorithms, Geometric transformation, blending, rendering and interfaces.

Research Assistant

March 2011–Feb 2012
School of Electrical Engineering and Computer Science (SEECS) NUST Islamabad.
Development of FPGA based High Speed Secure Communication System using 128-bit AES Encryption.

EDUCATION & CERTIFICATIONS

PhD in Electronics Engineering (CGPA 4.00/4.00), Feb 2015-August 2020

International Islamic University, Islamabad (Pakistan).
Thesis titled 'Multimodal speaker diarization'.
Published three impact factor journal articles consisting of: 1. Feature embedding technique using deep autoencoders 2. Multimodal speaker diarization using a pre-trained audio-visual synchronization model 3. Speech enhancement for multimodal speaker diarization.

3-Days Hands on Workshop on CUDA, Sep 20-22, 2017.

National Center for Physics (NCP), Islamabad (Pakistan).
9-Hours of Lectures and Lab sessions on CUDA.

Master's in computer engineering (CGPA 3.25/4.00), 2010-2013
National University of Science & Technology, Islamabad (Pakistan).
Research in Performance analysis of OFCDM (Orthogonal Frequency Code Division Multiplexing) in Stanford University Interim (SUI) channels.

Bachelors in Electronic Engineering (CGPA 3.59/4.00), 2005-2009
International Islamic University, Islamabad (Pakistan).
Unmanned Ground Vehicle (UGV) as a Final Year Project. Designed mechanically stable design for rough terrains and wireless video transmission from vehicle to the base station for rescue purposes.

PUBLICATIONS

1. R. Ahmad, S. Zubair and H. Alquhayz, "Speech Enhancement for Multimodal Speaker Diarization System," in IEEE Access, vol. 8, pp. 126671-126680, 2020, doi: 10.1109/ACCESS.2020.3007312. **(IF=4.076)**
2. Ahmad, R.; Zubair, S.; Alquhayz, H.; Ditta, A. Multimodal Speaker Diarization Using a Pre-Trained Audio-Visual Synchronization Model. Sensors 2019, 19, 5163. **(IF=3.031)**
3. AHMAD, R. and ZUBAIR, S., 2019. Unsupervised deep feature embeddings for speaker diarization. Turkish Journal of Electrical Engineering & Computer Sciences, 27(4), pp.3138-3149. **(IF=0.625)**
4. Z. A. Khan, S. Zubair, K. Imran, R. Ahmad, S. A. Butt and N. I. Chaudhary, "A New Users Rating-trend based Collaborative Denoising Auto-Encoder for Top-N Recommender Systems," in IEEE Access. doi: 10.1109/ACCESS.2019.2940603. **(IF=4.098)**
5. A. Khaliq, A. Waseem, M. F. Munir and R. Ahmad, "Comparison of adaptive noise cancelers for ECG signals in wireless biotelemetry system," 2016 International Conference on Intelligent Systems Engineering (ICISE), Islamabad, Pakistan, 2016, pp. 181-184.
6. A. Waseem, A. Khaliq, R. Ahmad and M. F. Munir, "Channel equalization for MIMO-FBMC systems," 2016 International Conference on Intelligent Systems Engineering (ICISE), Islamabad, Pakistan, 2016, pp. 272-277.
7. R. Ahmad and S. A. Khan, "Performance analysis of OFCDM in SUI channels," Communication Technology (ICCT), 2013 15th IEEE International Conference on, Guilin, 2013, pp. 104-109.