Harsh Sinha

Email: mail.sinha.harsh@gmail.com

INTERESTS Explainable AI, Domain adaptation, Computer vision, Deep learning, Biometrics

EDUCATION

Master of Engineering, Software Systems 2018 - present
Birla Institute of Technology and Science, Pilani *GPA :* 7.84/10.0
Thesis : Hyperspectral guided Image Dehazing
Advisor : Dr. Pratik Narang

Bachelor of Engineering (Hons.), Electrical & Electronics 2013 - 18
Birla Institute of Technology and Science, Pilani *GPA :* 7.97/10.0
Thesis : Deep Learning for Biometrics
Advisor : Dr. Pawan K Ajmera

Master of Science (Hons.), Chemistry 2013 - 18
Birla Institute of Technology and Science, Pilani *GPA :* 7.97/10.0
Thesis : Emission Properties of triplet harvesting AIE active materials
in the reverse micelles of gemini surfactants: Effect of spacer chain length
Advisor : Dr. Subit K Saha, Dr. Inamur R Laskar

PUBLICATIONS

Aditya Mehta, Harsh Sinha, Murari Mandal and Pratik Narang. "Domain-Aware Unsupervised Hyperspectral Reconstruction for Aerial Image Dehazing" In Winter Conference on Applications of Computer Vision **(WACV 2021)**. *Under review*

Harsh Sinha, Aditya Mehta, Murari Mandal and Pratik Narang. "SPECTRALGAN: Haze Removal via Unsupervised Image-to-Hyperspectral Translation." In British Machine Vision Conference **(BMVC 2020)**. *Under Review*

Aditya Mehta, Harsh Sinha, Pratik Narang and Murari Mandal. "HIDeGAN: A Hyperspectral-guided Image Dehazing GAN" Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2020**) Workshops.

Harsh Sinha, Vinayak Awasthi and Pawan K Ajmera. "Audio Classification using Braided Convolutional Neural Networks" IET Signal Processing. 2020. (In Press)

Harsh Sinha, Sakshi Kalra and Yashvardhan Sharma. "Text-Convolutional Neural Networks for Fake News Detection in Tweets" In Frontiers in Intelligent Computing: Theory and Applications. Springer, 2020.

Harsh Sinha and Pawan K. Ajmera. "Upgrading Security and Protection in Ear Biometrics" IET Biometrics 8, no. 4 (2019): 259-266.

Harsh Sinha, Raunak Manekar, Yash Sinha, and Pawan K Ajmera. "Convolutional Neural Network-based Human Identification using Outer Ear Images" In Soft Computing for Problem Solving, pp. 707-719. Springer, 2019.

Harsh Sinha, Shivin Srivastava, and Yash Sinha. "Studying the Role of Kinect as a Multi-Sensory Learning Platform for Children". In Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers **(UbiComp 2018)**, pp. 251-254. ACM

<u>Harsh Sinha</u> and Pawan K. Ajmera. "Interweaving Convolutions: An application to Audio Classification". KDD Deep Learning Day, 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining **(KDD 2018)**, London.

RESEARCH EXPERIENCE	**CSIR - Central Electronics Engineering Research Institute, Pilani**

Mentor: Dr. Santanu Chaudhury (Director, IIT, Jodhpur)   July 2018 - Dec 2018

Explored the immense potential of Generative Adversarial Networks (GANs) to generate 31 band hyperspectral images from RGB images employing the idea of neural oscillations to train GANs.

Samsung R&D Institute, Noida

Mentors: Mr. Chetan Chauhan, Mr. Ashish Thakur   Summer 2017

Proposed a Convolutional Encoder Decoder Network for End to End Image Generation using Tensorflow. The architecture was trained to detect blurred region of images in a pixel-by-pixel manner without any external estimation techniques.

PROJECTS	Reducibility among Combinatorial Problems	Aug 2019 - Oct 2019
	ViSoft: Visualization in Software Testing	Aug 2019 - Oct 2019
Machine Learning	A Variational Training perspective to GANs for Hyperspectral Image Generation	Jan 2018 - Dec 2018
Computer Vision	Detection of Amur Tigers in the Wild	Aug 2019 - Oct 2019
	Query Based Deep Face Image Retrieval	Jan 2019 - May 2019
NLP	Real-time Twitter Sentiment Analysis	Jan 2019 - May 2019
Spring MVC	Estate Security Management System	Jun 2018 - Dec 2018

TECHNICAL SKILLS	*Languages & Software:* PyTorch, TensorFlow, Keras, Python, MATLAB, Java, C/C++
	Courses: Object Oriented Analysis and Design, Data Mining, Machine Learning
	MOOCs: Machine Learning, Data Science Specialization

HONORS & AWARDS	**UbiComp 2018** *Travel Grant*	Oct 2018

Awarded a travel reimbursement of USD 600 for UbiComp '18

Microsoft Code.Fun.Do. Finalist Forum   Feb 2016 - August 2016
Runners Up across top 15 universities in India. Developed a Kinect-based learning platform which consisted of multiple games and a dashboard to help specially-abled children overcome difficulties in education. Awarded prizes worth INR 1,00,000.

PROFESSIONAL SERVICE	**Reviewer** : IET Biometrics, BMVC 2020

EXTRA CURRICULAR ACTIVITIES	**Johns Hopkins University**

Community Teaching Assistant. Responsible for supporting student learning on discussion forums at Coursera for the courses Exploratory Data Analysis and Reproducible Research

Prayag Sangeet Samiti, Allahabad
Sangeet Prabhakar in Tabla. Equivalent to *Bachelor of Music* in Vocal/Instrumental.