

Atharva Anand Joshi

Email: atharva.joshi253@gmail.com

Phone: +91 7875227790

LinkedIn: atharva-joshi-329684179

GitHub: github.com/atharva253

EDUCATION

Birla Institute of Technology and Science, Pilani

B.E. in Electrical and Electronics Engineering

GPA: 9.52/10.00, GRE: 331/340 (AWA: 4/6), TOEFL: 109/120

Rajasthan, India

2018-2022

EXPERIENCE

American Express, Artificial Intelligence Labs

Intern, AI Deployment Core Team

Gurgaon, India

Ongoing

- Mentor: Mr. Prashant Nair, Senior Product Manager, AI Labs
- Domain: Machine Learning Operations (MLOps)
- Exploring and implementing tools to facilitate an efficient end-to-end Machine Learning development process.

Birla Institute of Technology and Science, Pilani

Undergraduate Research and Development Project

Rajasthan, India

August 2021 - December 2021

- Mentor: Prof. Dr. Ananthakrishna Chintanpalli, Electrical and Electronics Engineering Department
- Predicted the effect of fundamental frequency (F0) difference on the identification scores in a concurrent vowel identification experiment using a combination of a physiologically realistic Auditory Nerve Model and Deep Learning.
- From the neuron responses generated by the Auditory Nerve Model, a temporal network architecture was used to model short-term and long-term dependencies.

Adobe Research, Bangalore

Research Intern, Big Data Experience Lab

Bangalore, India

Summer 2021

- Mentors: Dr. Atanu R Sinha, Principal Scientist, Bangalore and Dr. Sunav Choudhary, Research Scientist, Bangalore
- Created rich user representations that can serve as concise user profiles.
- These representations can be projected onto edge servers, powering faster marketing services.
- Performed various experiments around the extent of compression and updatability of the representation.
- Employed Deep Learning, including Multi-task Learning as a part of our pipeline.

Birla Institute of Technology and Science, Pilani

Undergraduate Research and Development Project

Rajasthan, India

December 2020 - April 2021

- Mentor: Prof. Dr. Syed Mohammad Zafaruddin, Electrical and Electronics Engineering Department
- Provided a statistical characterization of the maximal ratio combining (MRC) receiver over inid channel conditions modelling the combined effect of zero-bore pointing errors and fluctuating two-ray fading model.
- Validated our derived analytical expressions with Monte-Carlo simulations.

CSIR - Central Electronics Engineering Research Institute

Student Summer Intern

Rajasthan, India

Summer 2020

- Mentors: Dr. Sanjay Singh, Principal Scientist and Group Head, Cognitive Computing Group
- Developed a CNN model which can efficiently distinguish between normal, COVID-19 affected and pneumonia affected patients based on chest x-rays.
- Used glass-box techniques to interpret the results.

MENTORSHIP AND TEACHING

- **Teaching Assistant** at Birla Institute of Technology and Science, Pilani

Ongoing

Neural Networks and Fuzzy Logic (BITS F312)

Designing assignments and projects for students as evaluative components. Also conducting tutorial sessions to familiarise students with Deep Learning Frameworks: Tensorflow, Keras

PUBLICATIONS

- [1] A. A. Joshi, H. Settibhaktini, and A. Chintanpalli, “Modeling the concurrent vowel scores using the time delay neural network and multitask learning”, *IEEE Transactions on Audio, Speech, and Language Processing*, Under Review.
- [2] A. A. Joshi, P. Bhardwaj, and S. M. Zafaruddin, “Terahertz wireless transmissions with maximal ratio combining over fluctuating two-ray fading”, *IEEE Wireless Communications and Networking Conference (WCNC)*, Accepted.

TECHNICAL SKILLS

- **Programming:** Python3, Java, C, x86 Assembly Language
- **Deep Learning:** TensorFlow, Keras, OpenCV
- **Electronics:** MATLAB, Verilog, LTSpice, Prototyping using Arduino, Raspberry Pi and Nvidia Jetson Nano
- **Tools/Techs:** \LaTeX

KEY COURSE PROJECTS

Biomedical Image Segmentation using Convolutional Neural Networks

- (Neural Networks and Fuzzy Logic, 2021)
Implemented the research paper U-Net: Convolutional Networks for Biomedical Image Segmentation
We trained the model on the the ISBI challenge dataset: 30 images and their corresponding segmentation masks.
The implementation relies on strong data augmentation including Normal Augmentation, Overlap Tile Strategy and Random Elastic Transformations.

Real Time Object Detection in Aerial Images for Drones and UAV (Internet of Things, 2020)

- Developed a light-weight CNN algorithm to detect objects belonging to 15 categories including ground features, structures and vehicles. The model was trained on the DOTA-v1.0 dataset and deployed to the Nvidia Jetson Nano.

RELEVANT COURSEWORK

- **Electrical and Electronics Engineering:** Digital Signal Processing, Digital Image Processing, Communication Systems, Internet of Things, Microprocessors Programming and Interfacing, Digital Design, Microelectronic Circuits.
- **Other courses:** Computer Programming (C), Object Oriented Programming, Operating Systems, Neural Networks and Fuzzy Logic, Artificial Intelligence, Probability and Statistics, Linear Algebra, Differential Equations, Calculus.
- **Massive Open Online Courses:** Machine Learning by Stanford University (Coursera), Deep Learning Specialization by deeplearning.ai (Coursera) (5 courses)

SCHOLARSHIPS AND COMPETITIONS

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| • OP Jindal Engineering and Management Scholarship 2020
Nominated based on academic performance and shortlisted through a stringent process involving business idea proposal, online tests and an interview.
Proposal: AI based solution to automate traffic safety management for two wheelers. | November 2020 |
| • Institute Merit-Based Scholarship, Birla Institute of Technology and Science, Pilani
Awarded to the top 2% of the batch comprising of 1050 students.
Recipient of this scholarship for 5 consecutive semesters. | 2019–Current |
| • Regional Runner-up at TCS IT Wiz, a nationwide inter-school quiz competition | September 2015 |

POSITION OF RESPONSIBILITY

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| • Joint Coordinator at Ragamalika, the Classical Music and Dance Club of BITS Pilani
<i>Actively involved in composing music for semester productions and managing professional concerts.</i>
<i>Avid practitioner and performer of Hindustani Classical Vocal Music for the past twelve years.</i> | 2020–Current |
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