

# Atharva Anand Joshi

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## EDUCATION

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### Birla Institute of Technology and Science, Pilani

B.E. in Electrical and Electronics Engineering

GPA: 9.49/10.00, GRE: 331/340 (AWA: 4/6), TOEFL: 109/120

Rajasthan, India

2018-2022

## EXPERIENCE

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### American Express, Artificial Intelligence Labs

Analyst Intern, AiDa Deployment Core Team

Gurgaon, India

January 2022 - May 2022

- Mentor: Mr. Prashant Nair, Senior Product Manager, AI Labs
- Explored a template-based journey that allows users to seamlessly create and deploy their machine learning pipelines.
- Developed a framework that facilitates deployment of end-to-end Continual Learning pipelines for Sequence Deep Learning models as a part of this journey.

### 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

May 2021 - August 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

May 2020 - July 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

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

August 2021 - December 2021

*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

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- [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*, Accepted.
- [2] A. A. Joshi, P. Bhardwaj, and S. M. Zafaruddin, "Terahertz wireless transmissions with maximal ratio combining over fluctuating two-ray fading", in *2022 IEEE Wireless Communications and Networking Conference (WCNC)*, 2022, pp. 1575–1580.

## TECHNICAL SKILLS

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- **Programming:** Python3, Java, C/C++
- **Deep Learning:** TensorFlow, Keras
- **Big Data:** PySpark, Hive, SQL
- **Tools/Frameworks:** L<sup>A</sup>T<sub>E</sub>X, Git

## KEY COURSE PROJECTS

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### 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

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- **Electrical and Electronics Engineering:** Digital Signal Processing, Digital Image Processing, Communication Systems, Internet of Things, Microprocessors Programming and Interfacing, Digital Design, Microelectronic Circuits.
- **Computer Science/Mathematics:** 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 November 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.
- Institute Merit-Based Scholarship, Birla Institute of Technology and Science, Pilani 2019 - 2022  
Awarded to the top 2% of the batch comprising of 1050 students.  
Recipient of this scholarship for 6 consecutive semesters.
- 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 2020 - 2021  
*Actively involved in composing music for semester productions and managing professional concerts.*  
*Avid practitioner and performer of Hindustani Classical Vocal Music for the past twelve years.*