

ADITHYA NIRANJAN

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EDUCATION

Birla Institute of Technology and Science, Pilani

Bachelor of Engineering in Computer Science

Master of Sciences in Mathematics

CGPA : 9.15/10

Goa, India

Aug. 2016 – June 2021 (Expected)

PUBLICATIONS

NASCHA: Neural Architecture Search for Configurable Hardware Accelerators

Under review

COVIDDiagnosis : Deep diagnosis of COVID-19 patients using chest X-rays

K. Mahajan, M. Sharma, L. Vig, R. Khincha, S. Krishnan, A. Niranjana*, T. Dash, A. Srinivasan, G. Shroff

Accepted at the Second International Workshop on Thoracic Image Analysis, MICCAI'20

WORK AND RESEARCH EXPERIENCE

Research Intern

Intel Labs, Cloud Systems Research group

July 2020 – Present

Bangalore, India and Portland, Oregon (Remote)

AutoML research

- Currently working on Hardware-Software Co-design for FPGAs using Neural Architecture Search

Video Compression research

- Currently working on building temporally and spatially consistent real-time video compression flows using generative modelling

Summer Analyst

Goldman Sachs

May 2020 - Jun 2020

Bangalore, India (Remote)

- Built data pipelines and visualizations to help teams understand changes in developer work patterns and productivity during the COVID-19 crisis to enable teams to support employees better.
- Worked with ELK (Elasticsearch - Logstash - Kibana) stack. Code currently being used in production.

Research Intern

TCS Research and APPCAIR Lab, BITS Goa. Institute Advisor : Professor Ashwin Srinivasan

May 2019 – May 2020

Noida, India and Remotely

Chest X-Ray based COVID symptoms and disease prediction

- Worked on building a DL based tool to assist radiologists. Collaborated on building a pipeline comprising of lung segmentation/isolation model, followed by classifier augmented with symptom embeddings produced by the CheXpert network.
- Used visual explainability methods to provide interpretable and relatively trustworthy decisions. Work resulted in a paper at MICCAI-2020

Meta learning for Handwritten Text Recognition

- Worked on using applying meta-learning based algorithms (REPTILE and MANN) to seq-2-seq based C-RNN models to effectively recognize handwritten text from documents in low-resource languages.

Meta learning for Time Series Analysis

- Worked on an building a robust time-series forecasting model that can learn to forecast well from cold starts.
- Experimented with transfer learning and optimization-based meta-learning approaches such as REPTILE and CAVIA on various time-series forecasting models

OPEN SOURCE EXPERIENCE

European Summer of Weather Code 2020

European Centre for Medium-Range Weather Forecasts. Mentor : Dr. Peter Dueben

- ECMWF is Europe's largest meteorological research institute and the world's largest archive of numerical weather prediction data. ECMWF servers receive millions of requests and serve ~ 400 TB of weather data daily

- Worked on building a robust real-time time-series anomaly detection system based on machine learning using server log data to detect ECMWF server health and predict crashes
- Work was supported by a grant of £5,000 and done as part of the [European Summer of Weather Code 2020](#).
- Code released as an open source library/toolbox [[Code Repository](#)] [[Slides](#)]

PROJECTS

Multimodal analysis of Memes

Sep 2019 – Nov 2019

- Worked on detecting motivation, sentiment and offense from meme images and text using fusion models based on deep image and text embeddings as a course project for the Neural Networks course

Adversarial attacks on Neural Networks

Feb 2019 – May 2019

- Worked on evasion attacks using the targeted Fast Gradient Sign Method on VGG and ResNet architectures, under the guidance of [Prof. Tirtharaj Dash](#)

SELECTED COURSEWORK

MATHEMATICS: Probability and Statistics, **Discrete Mathematics**, Optimization, Linear Algebra, **Abstract Algebra**, Numerical Analysis, **Measure and Integration**, **Real Analysis**, Differential Equations

COMPUTER SCIENCE: **Machine Learning**, **Neural Networks and Fuzzy Logic**, Data Structures and Algorithms, **Logic in Computer Science**, Database Systems, Object Oriented Programming

SUMMER SCHOOLS: [Google Research India AI Summer School](#), [IIT-H Summer School on Machine Learning](#)

COURSERA AND OTHER (SELECTED): Machine Learning, DeepLearning.AI Specialization, DeepLearning.AI TensorFlow Developer Certification, Stanford CS231n: Convolutional Neural Networks for Visual Recognition

Courses in which I was in the Top 3 ranks are in **bold**

TECHNICAL SKILLS

LANGUAGES: Python, C++, C, Java, R, MATLAB, bash

TOOLS: Git, Docker, TravisCI, Google Colab, Jupyter Notebook, VS Code, PyCharm, IntelliJ, Eclipse

LIBRARIES: Numpy, Pandas, Matplotlib, Scikit-learn, OpenCV, Spinning-Up, rlppt

DEEP LEARNING FRAMEWORKS: TensorFlow, Keras, Pytorch, Pytorch Lightning

TEACHING AND MENTORSHIP

Teaching assistant - Machine Learning (BITS F464)

August 2019 – May 2020

- Taught classes of approximately 250 undergraduate students (over two semesters) a theory course in machine learning with instructor Dr. [Ashwin Srinivasan](#). Created teaching material, labs, course projects and evaluation content - [[Link](#)]

CS Department Mentor

August 2019 – May 2020

- Mentored a group of 15 first-year Undergrads in Machine Learning, under the CS Department Mentorship Programme
- Set up contact sessions to introduce them to basic aspects of Machine Learning and Computer Science

Teaching assistant - Calculus (MATH ZC233)

Aug 2018 – May 2019

- Taught a course in advanced calculus over two semesters with instructors Dr. [Shilpa Gondhali](#) and [Dr Gauranga Samantha](#) in a [Work Integrated Learning Program](#) (approximately 1000 students over two semesters)

Teaching Assistant - Computer Programming (CS F111)

Jan 2018 – May 2018

- Taught first year undergrad students bash shell scripting and C++ programming with instructor Dr. [Biju Raveendran](#)

ACHIEVEMENTS

[Google India AI Summer School](#): Among 150 undergraduate students selected from across India for the first Google Research India Summer School

[European Summer of Weather Code 2020](#): Project Proposal among one of the 11 accepted globally

[IIT-H Summer School on Machine Learning](#): Award for being among the top 20 participants

[BITS Pilani Institute Merit Scholarship \(From 2016 - Present\)](#): Awarded for being among the top 3% among 650 students

[Regional Math Olympiad](#): 4th in the Regional Math Olympiad.

[National Standard Exam in Astronomy](#): Top 1% in the [National Standard Exam in Astronomy](#).

[Kishore Vaigyanik Protsahan Yojana Scholar](#)

[National Talent Search Exam Scholar](#)