

Sharad CHITLANGIA

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EDUCATION

Present | **Birla Institute of Technology and Science Pilani, GOA, India**
August 2017 | Bachelor of Engineering (Hons.), Electronics & Instrumentation. CGPA = 7.9

EXPERIENCE

August 2019 | **Harvard University | Edge Computing Lab**
June 2019 | *Research Intern | Advisor: Vijay Janapa Reddi*
Worked at intersection of Deep Reinforcement Learning and Energy Efficiency for Drones. Extensive use of Tensorflow and TFLite. Performed >350 experiments to show effects of Quantization in RL, Quantization during training to be a better regularizer than traditional techniques and thus enable higher exploration and generalization.

August 2019 | **CERN-HSF**
May 2019 | *Google Summer of Code 2019 | Mentors: Moritz Kiehn, David Rousseau, Andreas Salzburger and Jean-Roch Vlimant*
Particle Track Reconstruction using Machine Learning. Ported top solutions from TrackML challenge to ACTS Framework. Added an example of running pytorch model in ACTS using Pytorch's C++ frontend libtorch in an end-to-end fashion to enable rapid testing of models. Testing with GNNs.

August 2018 | **UnFound.ai**
May 2018 | *Machine Learning & NLP Intern | Mentor: Ankur Pandey*
Revamped the existing Information Retrieval system to focus more on distributional semantics. Developed embeddings from a deep learning based model which could capture Semantic, Syntactic as well as Contextual information - **ELMo**. Training and deploying Stance Detection models - **ESIM**

PUBLICATIONS

Srivatsan Krishnan*, **Sharad Chitlangia***, Maximilian Lam*, Zishen Wan, Aleksandra Faust, Vijay Janapa Reddi
"Quantized Reinforcement Learning (QuaRL)" Under Review
[Arxiv](#), [Code](#)

SELECT PROJECTS

Neural Voice Cloning with Few Samples JAN'18 - MAY'18
[Code](#)
› Few Shot Learning based Methodology. Encoder Captures Speaker Features in Latent Space.
› Speaker Features fed to multi-speaker generative model (Deep Voice 3) + WaveNet to generate speaker conditioned Voices.
› Close to 150 ★ on GitHub. [Final Voices](#)

Autonomous Drone Navigation using Deep Reinforcement Learning AUG '18 - DEC '18
[Code](#)
› Imitation Learning on IDSIA Dataset to classify directional commands for UAV to navigate. ResNet18 to classify images.
› Tested some features with Mask RCNN for segmentation of forest paths as navigable by UAV.
› Project nominated by Institute and EEE Department to be one of the few sponsored projects.

Neuromodulated STDP for Basal Ganglia ONGOING
Spiking Neural Networks with [Basabhatta Sen Bhattacharya](#) | The Human Brain Project
› Implementation of Neuromodulated STDP using Izhikevich Neuron Models
› Motor Action Learning for Basal Ganglia Motor Neuron actions.
› Experiments on the HBP Platform

Particle Track Reconstruction using Machine Learning

AUG '18 - DEC '18

[Code](#), [Report](#), [Design Project](#) with [Kinjal Banerjee](#)

- › Initial Candidate Pair and Triplet estimation using Machine Learning except Graph Neural Networks.
- › Followed by reconstruction using Outlier Density Estimation Algorithm.
- › GNN model directly predicted weights between candidates for direct reconstruction.

Epileptic Seizure Detection using Deep Learning

AUG'18

[Code](#), [Report](#), [Course Project](#) in *Cognitive Neuroscience* with [Veeky Baths](#)

- › Implementation of End-to-end Deep Learning models used to predict seizures on first 60 seconds of EEG Recordings
- › 32 channel Data - TUH EEG Corpus.

Human Swarm Intelligence for Reconnaissance

OCT'18 - DEC'18

In collaboration with DRDO India

- › Phase 1 - Made a waypoint controller system for Multi-drone systems in ROS.
- › [Certificate](#)

TALKS AND CONFERENCES

ASCII Orientation

BITS GOA, INDIA, SEP'19

Delivered a talk. Audience: Freshman year students

Invited to give a talk on the recent advances of Machine Learning in technology, it's prospectives as a career and how to start.

OPEN SOURCE

- › Participated in **Google Summer of Code 2019** with CERN-HSF to work on contributing to the ACTS framework. [Final Product](#)
- › All projects open-sourced on GitHub.

TEACHING AND LEADERSHIP ROLES

Present
May 2019 | **Society for Artificial Intelligence and Deep Learning**
President

Leading and mentoring a group of 15 talented individuals in the field of Artificial Intelligence and Deep Learning.

Present
July 2019 | **Intel Student Ambassador for Artificial Intelligence**

Working on publishing technical articles on Artificial Intelligence using Intel technologies. Latest article on Particle Track Reconstruction using Machine Learning

October 2019
June 2019

Pixxel
Research
Study of Applications of Hyperspectral Unmixing. [Report](#)

Present
August 2019 | **Python BootCamp**
Organiser and Instructor

Initiative to teach Python to freshman year students. To get them upto speed with various projects happening on Campus

Present
August 2019 | **Project Mentor**
Instructor and Mentor

Leading and mentoring 4 projects on campus spanning the field of *AI - Language Research, Applications of Cognitive Neuroscience in AI, Learning how to play games using Reinforcement Learning, and Generation of Speech from Images - Image2Speech in MNIST.*

December 2018
August 2019 | **Introduction to Deep Learning**
Co-Instructor

Introduced students to the concepts of Deep Learning. The course structure followed was similar to Stanford's CS231n. [Course Material](#)

Present
March 2019

Quark

Panel Coordinator - BITSHack (Hackathon) and Programmer's Inc

Responsible for leading the organising team of the hackathon and other programming events in the annual techfest of the college. Coding events-{ Competitive Coding, Blockchain, Machine Learning, Cybersecurity, etc. }

RELEVANT COURSEWORK

Machine Learning*, Neural Networks and Fuzzy Logic*, Data Mining*, Probability and Statistics, Digital Image Processing, Digital Signal Processing, Microprocessors and Interfacing, Digital Design, Signals & Systems, Control Systems, Stanford's CS231n: Convolutional Neural Networks for Visual Recognition@, UCB's CS295: Deep Reinforcement Learning@, Stanford's CS224n: Natural Language Processing with Deep Learning@, Stanford's CS229: Machine Learning@. (* = Auditing, @ = Online)

HONOURS AND AWARDS

Hack InOut

BENGALURU, '19

Special Bounty Prize Winner

Won the special prize for designing a complete blockchain backed application - Decent League - A decentralized fantasy league. Prize given to only **1 out of 5400 teams** across India.

SKILLS

Languages	Python, C++, Ruby, Julia, SQL
Frameworks	Tensorflow, Pytorch
Technologies	Heroku, AWS EC2, Travis CI, Docker, \LaTeX , Git
Operating Systems	Ubuntu, macOS
Spoken Languages	English, Hindi, French

REFERENCES

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