

# Sharad CHITLANGIA

## Aspiring AI Researcher and Developer

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Artificial Intelligence enthusiast, Machine Learning aficionado and Software Developer. I'm currently a student researcher actively involved in some of the activities that can solve some real world problems using Machine Learning. I have work experience in Natural Language Processing and Deep Learning. I've worked on projects involving signal processing, computer vision, reinforcement learning and cognitive neuroscience. I wish to unravel the mysteries that underlies our human brain.

## EDUCATION

2017 - Ongoing B.E. in Electronics and Instrumentation - CGPA - 8.02 (Three semesters)  
2017 R.N. Podar - CBSE - Grade XII - 86.2 %  
2015 Lilavatibai Podar Senior Secondary School - ICSE - Grade 10 - 94.5%





## SKILLS

**Languages** Python, ROS, C, C++, Shell, Ruby on Rails  
**Frameworks** Tensorflow, Pytorch, ROS  
**Cloud** AWS EC2, Google Compute Engine, Google Colab  
**Technical Knowledge** Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Reinforcement Learning, Cognitive Neuroscience, Signal Processing

## WORK EXPERIENCE

May 2018 | UnFound.news | Machine Learning | Intern, MUMBAI, India  
July 2018

- Improved existing Information Retrieval System by incorporating techniques which focused more on semantics.
- Developed embeddings from a deep learning based model which could capture Semantic, Syntactic as well as Contextual information about a particular sentence. The basic architecture was Char CNN followed by BiLSTM. The model is popularly known as ELMo.
- Understanding and writing training scripts for stance detection models to detect if two pieces of articles have the same view points regarding a particular topic. The model had Tree-LSTMs for syntactic parsing through text which helped in the task of predicting stance between two sentences.

## PROJECTS

### NEURAL VOICE CLONING WITH FEW SAMPLES

JAN 2018 - APRIL 2018

 [github.com/Sharad24/Neural-Voice-Cloning-with-Few-Samples](https://github.com/Sharad24/Neural-Voice-Cloning-with-Few-Samples)

The aim was to develop a system which can *clone* a person's voice given only few samples of his voice. It utilises Baidu's advanced tts system : *Deep Voice 3 and an encoder model* which can encode a person's voice in a latent space. Deep voice 3, with its fast *fully convolutional attention based tts*, is used to generate voices given the text and speaker embedding.

### AUTONOMOUS DRONE NAVIGATION USING DEEP REINFORCEMENT LEARNING

NOVEMBER 2018 - ONGOING

 [github.com/Sharad24/Autonomous-Drone-Navigation](https://github.com/Sharad24/Autonomous-Drone-Navigation) Received Institute and EEE department Funding 30,600

A drone capable of autonomously navigation terrains and roads, avoiding obstacles using Image segmentation and Deep Reinforcement Learning techniques by finding pathways. All computation is done onboard, on a Nvidia Jetson tx2. Currently a resnet18 and yolo model is used to predict directions for navigation.

[github.com/Sharad24/Particle-Track-Reconstruction](https://github.com/Sharad24/Particle-Track-Reconstruction)

Track Reconstruction is one of the fundamental steps at LHC, Cern in the search for new particles and study of existing ones. The massive amounts of data collected by their experiments with small unavoidable errors paves way for Machine Learning based algorithms over Combinatorial ones. The current methods explored include DBSCAN and Neural Networks

Python Keras sklearn

**EPILEPTIC SEIZURE DETECTION USING DEEP LEARNING | COURSE PROJECT | DR. VEEKY BATHS**

SEPTEMBER 2018 - ONGOING

[github.com/Sharad24/Epileptic-Seizure-Detection](https://github.com/Sharad24/Epileptic-Seizure-Detection)

Analysing EEG seizure data to detect Epileptic Seizures on the TUH-EEG Corpus. Currently implemented models in published research papers. Architectures include RNN, Convolutional RNN, Inception based networks and Densely connected Convolutional RNNs. Transforms like Fast Fourier Transform and Wavelet transforms are being used to decompose Signals from EEG data into less complex interpretable data for Deep Neural Networks.

Python Pytorch GCP

**HUMAN SWARM INTELLIGENCE FOR RECONNAISSANCE | DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION, INDIA**

OCTOBER 2018 - PRESENT

Certificate

Artificial Intelligence for Swarm based Drone Systems on battlefield to aid Soldiers during reconnaissance. Certificate on website.

Python Pytorch ROS

## TEACHING EXPERIENCE

**DEEP LEARNING | TECHNOLOGY INCUBATOR PROGRAMME**

SEPTEMBER 2018 - ONGOING

[github.com/SforAiDL/Deep-Learning-TIP](https://github.com/SforAiDL/Deep-Learning-TIP)

An introductory course on deep learning for first and second year students. The course was designed in such a manner that it does not just focus on using libraries or high level APIs to implement popular algorithms, but rather implementing them with the only numpy. Important focus was on intuition and math behind all the algorithms taught. Topics covered include : Basics of Machine Learning, Linear and Logistic Regression, KNN and K-means clustering, Backpropagation algorithm and a 2 layer XOR simulating neural network.

The course will be continued over the second semester of 2018-2019 academic year, as 'Applied deep learning' where every 3 weeks will be devoted to exploring advanced deep learning methods and techniques applied to fields like Computer Vision, Natural Language Processing, Robotics, Speech Synthesis and EEG.

**GALAXY CLASSIFICATION USING NEURAL NETWORKS**

NOVEMBER 2018 - ONGOING

SEDS Celestia, BITS Goa

Teaching, Mentoring and guiding a of students to learn the basics of Machine Learning (Types of Learning, Linear and Logistic Regression, Neural Networks) and apply the knowledge to build a neural network to classify a galaxy as spiral or elliptical. The project will be demonstrated in the college techfest, Quark 2019.

## REFERENCES

**Dr. Kinjal Banerjee**

Professor, DEPARTMENT OF PHYSICS

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