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

EXPERIENCE

August 2019 – June 2019 | **Harvard University | Edge Computing Lab**
Research Intern | Advisor: Vijay Janapa Reddi
Worked at intersection of Deep Reinforcement Learning and Energy Efficiency for Drones. Research preprint submitted to ICLR '20.

August 2019 – May 2019 | **CERN-HSF**
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.

August 2018 – May 2018 | **UnFound.ai**
Machine Learning 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 in **ICLR 2020** Conference Proceedings

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 are 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 Basabdatta 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

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

Course Project in Cognitive Neuroscience with Veeky Baths

- 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, 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

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

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 2017, August 2017 — **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. (* = Auditing)

Skills

Languages	Python, C++, Ruby, 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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