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Education

University of Illinois at Chicago   Chicago, Illinois
Masters in Computer Science (GPA 3.77 / 4.0) (OPT)   2017 - 2018

University of Mumbai   Mumbai, Maharashtra
Bachelor of Engineering in Computer Science (CGPA 8.0 / 10.0)   2012 - 2016

Technical Skills

Programming: **Proficient** : Python, Java, Android, **Intermediate:** C#, C, C++
Deep Learning Frameworks: Tensorflow, Theano, Keras

Relevant Experience

Collaboration with Prominent Group (UIC)   Chicago, Illinois
Professor Houshang Darabi - Time Series Classification with Deep Learning   May, 2017 - May, 2018
  I. Published two papers on hybrid LSTM Fully Convolutional Neural Networks which obtain state of the art scores on UCR univarate and multivariate time series classification datasets.

Research Assistant (UIC)   Chicago, Illinois
Professor Bing Liu - Lifelong Deep Learning   August, 2017 - December, 2017
  I. Performed research on how to avoid the catastrophic forgetting issue when training neural networks on new tasks or when finetuning models on vastly different domains.

Muktangan (NGO)   Mumbai, Maharashtra
Application Developer   January - July 2015
  I. Designed and implemented an automatic timetable generation software in C# and Visual Studio to manage and create non-conflicting timetables for 7 schools of Muktangan in Mumbai.
  II. Implementation of a student grade assessment tool in C# and Visual Studio to grade students proficiencies and determine how to aid theit academics by analysing the skill level in that subject, and can recommend if the student should take supplementary classes.

Horizon Solutions   Mumbai, Maharashtra
Co-founder, CTO / Software Engineer   January 2015 - July 2016
  I. Founded to provide software solutions to local business and clients. Developed multiple applications in Java / Android / C#.
  II. Tasked with managing the codebase, incorporate machine learning and manage database and backend infrastructure of the projects.

Relevant Projects

  I. Implemented **Neural Style Transfer** from the paper "A Neural Algorithm of Artistic Style" in Keras. Includes several improvements from various other papers such as **Color transfer, Multi style transfer and Masked style transfer**. **(1200+*)** https://github.com/titu1994/Neural-Style-Transfer
  II. Implemented **Image Super Resolution** neural network models such as SRCNN, Denoise SRCNN, SRResNet and ESPCNN **which can upscale an image** with reduced loss of details. **(350+*)** https://github.com/titu1994/ImageSuperResolution

III.   Implemented **Neural Image Assessment**, trained on the AVA dataset to evaluate how visually impressive an image is. **(200+*)** https://github.com/titu1994/neural-image-assessment
IV.   Implemented **deep convolutional neural network classifiers** in Keras, such as Wide Residual Networks, DenseNets, Inception Res-Net v2, ResNeXt, MobileNets, Squeeze-and-Excitation Networks, NASNet. **(200+*)** https://github.com/titu1994/Keras-Classification-Models
V.   Created a hybrid **Long Short Term Memory RNN - Fully Convolutional Network (LSTM-FCN)** which outperforms all other state of the art models on 85 UCR univariate time series datasets. **(100+*)** https://github.com/titu1994/LSTM-FCN
VI.   Improved **LSTM-FCN model to be used with Multivariate Time Series datasets**, called Multivariate LSTM-FCNs which obtain state of the art performance on 28 out of 35 multivariate datasets. **(50+*)** https://github.com/titu1994/MLSTM-FCN
VII.   Implemented **Neural Architecture Search used by Google for their AutoML project**, which uses a Controller RNN to train and optimize the structure of children models to obtain high performance architectures automatically. **(100+*)** https://github.com/titu1994/neural-architecture-search. A recent update to this was **Progressive NAS**, which uses Sequential Model-Based Optimization to quickly obtain the best model for a search space using fewer number of models trained. **(35+*)** https://github.com/titu1994/progressive-neural-architecture-search .
VIII.   Wrote a **python library, PySHAC**, which applies **Sequential Halving and Classification** to reduce the search space, which can be used to perform architecture search or hyperparameter optimization in an efficient manner. https://github.com/titu1994/pyshac
IX.   Implemented the **Fully Connected DenseNet for Semantic Segmentation** which improves upon SegNet and U-Net on various public benchmarks such as Pascal VOC and CamVid. **(70+*)** https://github.com/titu1994/Fully-Connected-DenseNets-Semantic-Segmentation

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Research Papers

I.   Author of the paper "*LSTM Fully Convolutional Network for Time Series Classification*", which is a hybrid model of LSTM and FCN. Accepted at IEEE Access and published in IEEE Transactions : http://ieeexplore.ieee.org/document/8141873/
II.   Co-author of the paper *"Multivariate LSTM-FCNs for Time Series Classification"*, which extends the above model to multivariate time series datasets. Can be viewed at: https://arxiv.org/abs/1801.04503
III.   Co-author of "*Microaneurysm Detection using Fully Convolutional Neural Networks*", which obtains state of the art results on semantic segmentation of microaneurysms in fundus photography. Accepted in the *Journal of Computer Methods and Programs in Biomedicine* : https://www.sciencedirect.com/science/article/pii/S0169260717308544
IV.   Author of "*Parallel Quick Sort using Thread Pool Pattern*", a paper on the utilization of thread pools to improve the time and space complexity of Quicksort. It can be viewed at : http://www.ijcsit.com/docs/Volume%207/vol7issue2/ijcsit2016070209.pdf
V.   Author of "*AdaSort: Adaptive Sorting using Machine Learning*", a paper which described utilization of machine learning to create a meta sorting algorithm to select the best sorting algorithm for a given arrayset. http://www.ijcaonline.org/archives/volume145/number12/majumdar-2016-ijca-910726.pdf

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Extracurricular Activities

● **Won First prize at Emirates Carnegie Mellon CMU Machine Learning & AI Hackathon**
● Completed Deep Learning courses 1-5 by Andrew Ng on Coursera