Sumeet Ranka

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ACADEMIC QUALIFICATIONS

2019	MSc in Applied Computing (**Courses**: Machine Learning and Data Mining, Machine Learning for Health, Natural Language Computing, Topics in Interactive Computing: AR/VR, Communication for Computer Scientists, Technical Entrepreneurship)	University of Toronto	4.0/4.0
2017	Bachelor of Technology - Computer Science and Engineering (**Courses**: Computer Vision using ML, Probability Theory and Random Processes, Data Structure, Algorithms, Parallel Computing, Theory of Computation, Operating Systems, Networks, Databases)	Indian Institute of Technology (IIT) Guwahati	8.86/10.0

EXPERIENCES

Applied Research Intern at Phenomic AI *MAY 2019 – Present*

Tools Used: Python, CellProfiler, AWS services

Involves segmentation and feature extraction from 1000+ microscopy images every week. It is followed by analysis to classify the cells in images into different cell types using suitable supervised or semi-supervised learning techniques .
The process of segmentation and feature extraction was automated with the use of AWS services and Airflow. The analysis based on classification involved validation and quantification of the observation made by biologists.

Software Engineer at Samsung Research Institute - Bangalore *JUNE 2017 – AUGUST 2018*

Tools Used: C++, Tensorflow Lite, Apache Spark, Scala

- Devised an offline tracking method for residents based on sensors in the house. Published in a Springer conference
- Developed a robust generic preprocessing script for raw sensor-based data. Reduced time from two weeks to three days.
- Development of voice activity model trained on TIMIT and in-house dataset for a resource-constraint embedded device

Award: Internal Samsung Awards for preprocessing script and significant improvement in validation time of the model.

Summer Intern at 'Flipkart India Pvt. Ltd.' *MAY – JULY 2016*

- Developed functional and performance testing modules for a hierarchical database architecture
- Identified bottlenecks and limitations in the underlying database architecture
- Modularised to configure and develop new testing modules easily

PUBLICATIONS

Ranka, S., Singh, V. and Choudhury, M., 2018, July. **USHEr: User Separation in Home Environment**. In International Conference on Smart Homes and Health Telematics (pp. 215-224). Springer, Cham.

PROJECTS

k-space IMPUTATION AND MRI RECONSTRUCTION *JAN - APR 2019*

Prof. Marzyeh Ghassemi,Dept. of Computer Science, University of Toronto

Explored denoising autoencoder based U-Net and perceptual GAN to impute k-space to improve the process of MRI reconstruction. Proposed the DAE-UNet method and trained using fastMRI dataset.

TEXT READABILITY ANALYSIS USING LANGUAGE MODELS *FEB - APR 2017*

Prof. Ashish Anand, Dept. of CSE, IIT Guwahati

Developed an unsupervised approach for predicting text readability scores. Implemented deep-learning and statistical models for comparing results with vocabulary-based and syntactic approaches.

USING SPATIAL TRANSFORMER NETWORKS FOR EGOCENTRIC IMAGES *SEPT - NOV 2016*

Prof. Arijit Sur, Dept. of CSE, IIT Guwahati

Implementing spatial transformer networks (introduced in Google DeepMind) for object recognition and activity prediction from egocentric images and evaluating it on GTEA dataset. The model showed better results than a traditional CNN model.

ACHIEVEMENTS & TALKS

- Session Speaker at IIT (BHU) Varanasi in **QIP-STC 2017** themed on *"Machine Learning: Trends, Perspectives & Prospects"*
- Ranked 11 in **Microsoft – Build the Shield 2015**, a team based event on Software and Network Security
- Qualified for the Onsite **ACM-ICPC (Amritapuri) – 2014 (India)**, a competitive programming contest
- Delivered talks on various topics (*IITG Network Architecture, Introduction to Programming, Object Oriented Programming Structure*) as undergrad student in IIT Guwahati

TECHNICAL PROFICIENCY

- Languages: C/C++, Python, Scala, Javascript
- ML & BigData Tools: Tensorflow, Google Cloud, AWS services, Apache-Spark
- Tools and IDE : Apache JMeter, Visual Studio, JupyterLab
- Miscellaneous: CellProfiler, Docker, Git, LaTeX, MySQL