Akshit Tyagi

Senior Undergrad Electrical Engineering
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Education

July '14 - Present Bachelor of Technology from **Indian Institute of Technology, Delhi**
Major: Electrical Engineering | Minor: Computer Science and Engineering
GPA: 8.8/10

May 2014 All India Secondary School Certificate Examination in Sciences
Delhi Public School, R.K. Puram
Aggregate Percentage: 97.0

Undergrad Thesis

Worked with Prof. Mausam on the task of science based elementary level question answering. We use a memory network to represent knowledge and learn relations between answer choices and question text with a semi curated KB generated from a science corpus. Submitted to EMNLP 2018 for review.

Work Experience

May - July 2017 **Machine Learning Research Intern** at Amazon
CoreML & Self-Serviced Performance Ads

- Worked on designing, developing and deploying an auto-moderation system for book campaigns
- Designed a text based model to produce feature vectors for the given campaign from its custom text and description
- Developed an end-to-end training and testing pipeline for weekly training builds and live scoring of incoming campaigns
- Deployed this model to production for batch-level scoring of a set of incoming campaigns
- Achieved a 25% replacement of manual moderation by auto moderation while the dip in accuracy of less than 1%

May - July 2016 **Summer Engineering Intern** at NVIDIA
CPU Verification and Testing

- Worked on handling undefined op-codes for an architectural simulator
- Developed a layer to handle instruction level access for the CPU and the execution of exception return
- Compared native performance with the simulator and improved upon the perf-per-watt characteristics. Used QEMU to emulate an ARM environment for CPU architectural testing

Programming Languages and Frameworks

Extensive:	Python, C, C++, Java, MATLAB, Keras, Tensorflow, Bash
Intermediate:	Caffe, Mathematica, sklearn, gensim, CUDA, OpenMP
Basic:	JavaScript, CSS, Android Studio, MPI

Research Projects

Dealsnprice.com (Nov'15 - Jan'16)
Image Search System
Worked on Caffe's integration with ROS for deploying image-search using object detection for e-commerce applications. Implemented a ConvNet to optimize feature extraction and use it to find embeddings for k-Nearest Neighbour recommendations

IIT Delhi (Oct'16 - Nov'16)
Stock Price Prediction using Echo State Networks
Used an Echo State Network(ESN) for the time series prediction of the stock market index of various stocks. Training was done on the past 3 years of data

IIT Delhi (Dec'16 - Mar'17)
Compressing Deep Neural Nets
Implemented the baseline paper for Squeezenet and used decorrelation in its parameters to reduce the overall number of parameters by thresholding. All the parameters below a certain threshold were approximated as zero

IIT Delhi (Mar'16 - May'16)
Facial Recognition using Fisher and Eigen faces
Worked on implementing a facial recognition applet that uses Fisher's Linear Discriminant method to train and classify faces from a training set. The algorithm maximized the between-class-scatter (photos of different people) and minimized the within-class-scatter (different photos of the same person).

IIT Delhi (Jan'16 - Feb'16)
Background Detection in a Video Stream
Developed a program to detect Background and Foreground pixels using the Background Subtraction technique (used Gaussian Mixture Models). Each pixel(three channel) was modeled as a mixture of Gaussians, the Gaussian(s) with the minimum variance were chosen to describe a background pixel.

Relevant Courses Taken

Computer Science	Data Structure and Algorithms, Analysis & Design of Algorithms, Parallel and Distributed Systems, Operating Systems, Natural Language Processing*, Computer Architecture, Artificial Intelligence, Cryptography,
Electrical Engineering	Communication Engineering, Control Theory, Digital Logic and Electronics, Machine Learning, Deep Learning
Mathematics	Probability and Stochastic Processes, Linear Algebra and Differential Equations, Calculus

Teaching Experience

Fall Semester 2017	TA for Communication Engineering
Spring Semester 2018	TA for Probability and Stochastic Processes

Awards, Grants & Honours

Design & Innovation Summer Award(DISA)	IIT Delhi(2015)
Institute Award for being a student in the top 7% in the first year	IIT Delhi(2014-2015)
National Talent Search Examination 2010	NCERT(July 2010)
KVPY Fellowship 2012-13	Dept. of Sci. & Tech.(2013)
Indian National Chemistry Olympiad 2014, Top 50	HBCSE(Feb 2014)
Junior Science Talent Search Examination 2011, 2nd Position	Govt. of Delhi(July 2011)

References

IIT Delhi

Prof. Mausam
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IIT Delhi

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