Aditya Srinivas Timmaraju

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EDUCATION

Stanford University Sept 2013 - June 2015
Master of Science in Electrical Engineering *GPA* 3.91/4
Focus: Computer Vision, Machine Learning

Indian Institute of Technology Hyderabad Aug 2009 - Aug 2013
Bachelor of Technology (with Honors)
Electrical Engineering with a minor in Computer Science *GPA* 9.18/10

DISTINCTIONS

- 1st in class, **Institute Gold medal** and **Silver medal** at IIT Hyderabad
- Ranked **186/1,000,000+** in All India Engineering Entrance Exam 2009
- Magic Grant 2014 Finalist - Stanford's Brown Institute for Media Innovation
- University of Tokyo Scholarship for outstanding academic performance

PATENT PENDING

Improved Field Programmable Gate Array Arrangement For Single Event Upset Detection and a Method Thereof (No. 1158/CHE/2013 A)

EXPERIENCE

Research Scientist at Blippar *Feb '16 - now*
Building deep neural networks for understanding visual semantics of images with people

Artificial Intelligence Engineer at AIBrain Inc. *Jul '15 - Feb '16*
Built a state-of-the-art Emotion Recognition engine, that recognizes emotion in a piece of text, using Deep Learning techniques. Trained a speaker identification model and optimized parameters over a speed-accuracy trade-off.

Improving SLAM for Indoor Robot Navigation *Jun '14 - Sept '14*
Intern at Qualcomm Research Silicon Valley
Modified GMapping and devised a novel particle filtering algorithm using Wi-Fi location estimate, and observed performance improvement in terms of localization error. Used Gazebo, ROS and C++ to build experimental setup and test the new algorithm.

Text Recognition using Convolutional Neural Networks *Feb '15 - Mar '15*
Devised a method of detecting as well as recognizing text contained in images using Convolutional Neural Networks (CNNs). Obtained state-of-the-art comparable results for character detection and character recognition sub-tasks.

Teaching Assistant, EE 263 (Linear Dynamical Systems) *Fall '14*

Teaching Assistant, CS 231A (Computer Vision) *Winter '15*
Wrote lecture notes (that are used now), improved class organization

Teaching Assistant, CS 379C (Computational Neuroscience) *Spring '15*
Guided students to Deep Learning libraries for projects

3D Everything Project *Apr '14 - Dec '14*
Computational Vision and Geometry Lab, Prof. Silvio Savarese
Used iterative k-Means clustering to learn discriminative mid-level patches in synthetic chair images. Built a network in which each cluster contains patches belonging to the same chair parts as seen from the same viewpoint, across different instances.

Real-time Landmark Recognition on Android phone *April '14 - June '14*
Designed a real-time landmark recognition app based on image recognition and GPS location, that runs solely on-device without need for a server. Achieved real-time performance by using fast ORB keypoint detection, employed bag-of-visual words histograms and RANSAC.

Learning a Robust Binary Feature Descriptor from Images *Jan '14 - Mar '14*
Devised a technique (MALCOM) to learn sparse and discriminative binary descriptors from images. Results indicate that MALCOM's performance, with even as few as 128 bits, surpasses that of FREAK, a state-of-the-art binary descriptor which uses 512 bits.

Video Search and Retrieval using Saliency Information *Oct '12 - Mar '13*
Implemented a video fingerprinting system, using the Perceptual Distance Metric and Differential Block Luminance as features. Devised a new method, which incorporated saliency information and improved the confusion matrix for 86% of the queries. Improved the results by 7% using audio and video information as opposed to only video.

Machine Learning approach to EPL Outcome Prediction *Oct '13 - Dec '13*
Devised a novel algorithm that outperforms state-of-the-art approaches in EPL match prediction and also beats expert predictions. Cast the problem as a classification task, introduced a new feature, drawing parallels from work in image retrieval, and used an RBF-SVM.

Statistical Location Inference from only Connectivity *Oct '13 - Dec '13*
Supervisor: Prof. Andrea Montanari, Graduate Research
Proposed a new algorithm based on maximum likelihood inference, for location estimation of nodes in a network, given only the connectivity information. Characterized the Fisher Information matrix for this estimation problem and proved its singularity. Empirically demonstrated superiority of the proposed algorithm as compared to MDS-MAP, an existing connectivity-based method.

Audio Search equipped with song recognition by humming *Sep '12 - Mar '13*
Undergrad thesis, Speech and Image Processing Lab
Successfully applied Segmental Dynamic Time Warping to the problem of query by humming song search. Examined and implemented techniques of note sequence matching for search using a hummed query. Evaluated the implementation on the Jang database. As a precursor, also implemented Philips' Robust Audio Fingerprinting system.
Supervisor: Prof. K Sri Rama Murty

Interim Engineering Intern, Qualcomm Inc. *May '12 - Jul '12*
Worked on generating HDL models (both VHDL and Verilog) of input-output pads. Performed Register Transfer Level (RTL) verification of the design modules. Wrote test-benches in Verilog for functional verification.

SKILLS

Languages	Python, Java, C++, JavaScript
Tools	Robot Operating System, Gazebo, PSpice

LEADERSHIP

Literary Secretary, Student Gymkhana, IIT Hyderabad	*Apr '11 - Mar '12*
Proof-Reading Coordinator, Elan 2011, IIT Hyderabad	*Jul '10 - Jan '11*
Co-Founder & Coordinator, Elektronica, the Electronics Club, IITH	*Apr '11 - Jan '12*
Core member & Editor, Cepheid, the Astronomy club, IITH	*Mar '10 - Mar '11*