R SANTHOSH KUMAR | EE12B101

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EDUCATION

Program	Institution	%/CGPA	Year of completion
B.Tech and M.Tech Dual Degree in Electrical Engineering	Indian Institute of Technology Madras, Chennai	9.5	2017
XII (AISSCE) (With Computer Science)	P S Senior Secondary School, Mylapore, Chennai	97.6	2012
X (AISSE)	P S Senior Secondary School, Mylapore, Chennai	10	2010

PROFESSIONAL EXPERIENCE

- **SURGE: Summer Internship at IIT Kanpur** (*May 2016 - July 2016*)
  - Extensively explored the problem of Visual Question Answering
  - Improved the image features extracted by aligning image representation with text representation using Deep CNNs
  - Obtained a 1.5% improvement over the baseline model. Continuing collaboration with IIT-Kanpur.
- **Winter Internship at HyperVerge Inc.** (*December 2014 - January 2015*)
  - Conducted Literary survey on generating Category Independent Object Proposals in an Image
  - Prototyped and tested existing algorithms such as Selective Search and Multiscale Combinatorial Grouping in MATLAB
  - Implemented the best algorithm in C++ for testing and deployment
- **Summer Internship at HyperVerge Inc.** (*May 2014 - July 2014*)
  - Worked on developing modules for Video Surveillance Applications
  - Conducted extensive literary survey, benchmarked a variety of Background Subtraction Modules and worked on implementing a current State of the art Background subtraction module, on CPU and GPU
  - Analysed and implemented existing Object Tracking algorithms

PROJECTS

- **Spell Checker** (*NLP course project*), *July 2015 - November 2015*
  - Developed statistical word, phrase and sentence spell checking systems
  - Noisy channel approach was used along with Damerau Levenshtein distance for single word spell check
  - Bayesian classifier model based on context words and collocation for phrase and sentence spell check
  - Highest scoring model in the word spell check category among all the teams that participated
- **Statistical Machine Translation** (*NLP course project*), *July 2015 - November 2015*
  - Worked on a statistical machine translation system (French to English)
  - Explored and implemented IBM Model 1 and IBM Model 2
  - Developed an efficient and improved sentence generation algorithm
- **Trifocal Tensor Estimation** (*Geometry and Photometry course project*), *January 2015 - May 2015*
  - The approach was to estimate the Trifocal tensor using 6 point correspondences.
  - Implemented a robust algorithm to compute initial estimates of the tensor using trilinearity equations

- Final estimates were obtained using Maximum Likelihood Estimation

- **Salient Object Detection** (*Computer Vision course project*), *January 2015 - May 2015*
  - Implemented a Discriminative regional feature integration approach to obtain the saliency map
  - Produced marginal improvements by improving the multiscale detection algorithm
  - Used the saliency map as a prior to the grabcut algorithm and obtained the segmented foreground objects

SKILLS

- **Programming Languages:** C, C++, Python, MATLAB, Lua, basic R
- **Operating Systems:** Experienced in working in Linux and Windows environments
- **Libraries:** OpenCV, OpenNI, Torch7, Caffe, CUDA

RELEVANT COURSEWORK

- Artificial Neural Networks
- Computational Photography
- Natural Language Processing
- Advanced Data Structures and Algorithms*
- Applied Time Series Analysis
- Multivariate Data Analysis for Process Modeling
- Computer Vision
- Geometry and Photometry-based Image analysis
- Speech Signal Processing*
- Introduction to Data Structures and Algorithms
- Introduction to Machine Learning
- Process Optimization

*Ongoing Courses

POSITIONS OF RESPONSIBILITY

- Student-in-Charge, Electrical Engineering Association, IIT Madras, June 2014 - 2015
- Volunteer at SPIC MACAY, Chennai Chapter, January 2013 - July 2014

ACHIEVEMENTS

- Selected for the SURGE program (IIT Kanpur CSE department) in summer of 2016 (only 2 students selected for CSE)
- Won the fifth prize in Shaastra Big Data contest in 2015
- IIT-JEE 2012 All India Rank 783
- Offered Kishore Vaigyanik Protsahan Yojana (KVPY) Scholarship, awarded by the Department of Science and Technology,Government of India, to select students to promote interest in basic sciences in 2012
- School Topper (overall and in C++) in class 12th AISSCE

EXTRA-CURRICULAR ACTIVITIES

- Western Classical Music: Passed the Trinity grade 2 exam in Western Classical Keyboard category with distinction
- Learnt Carnatic Music on Keyboard for 2 years

OBJECTIVE

To build a long-term career as an engineer in the fields of machine learning, computer vision.

DECLARATION

I hereby declare that all the information given above is true to the best of my knowledge as on 26^{th} August, 2016.