Sai Srivatsa Ravindranath
4^{th} Year Undergraduate
Indian Institute of Technology, Kharagpur

CONTACT INFORMATION

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RESEARCH INTERESTS

Computer Vision, Machine Learning

EDUCATION

Indian Institute of Technology, Kharagpur **July, 2012 - Present**
B.Tech (Hons) in Electrical Engineering
Minor in Computer Science and Engineering
- GPA (until the 6^{th} semester): 8.96/10.00

SBOA School and Junior College, Chennai **July, 2010 - Apr, 2012**
Higher Secondary School Examinations, Class XII, CBSE board
- Aggregate: 95.6%
- Computer Science: 99%

Kendriya Vidyalaya No 2, Kalpakkam **April, 2000 - Apr, 2010**
Higher Secondary School Examinations, Class XII, CBSE board
- GPA: 9.8/10.0

PUBLICATIONS

Sai Srivatsa R, Michael Gygli, Luc Van Gool. "Learning Objective functions for Improved Image retrieval". MediaEval 2015 Workshops.

Sai Srivatsa R, R Venkatesh Babu. "Salient Object Detection via Objectness Measure". IEEE International Conference on Image Processing (ICIP), 2015.

RESEARCH EXPERIENCE

Learning Submodular Objectives for Improved Image Retrieval
Computer Vision Lab, ETH Zurich
Advisor : Michael Gygli, Prof. Luc Van Gool **May, 2015 - July, 2015**
- Formulated Image retrieval as subset selection problem and addressed it using submodularity.
- Implemented various submodular shells that quantify how relevant or representative a given subset is.
- Learnt weights for the mixture of implemented shells using large-margin formulation.
- Promising results on MediaEval 2013 and 2015

Visual Interestingness of Images
Computer Vision Lab, ETH Zurich
Advisor : Michael Gygli, Prof. Luc Van Gool **May, 2015 - July, 2015**
- Analyzed how image content and emotions are linked to interest.
- Built a predictive model using deep convolutional networks, which predicts interest more accurately that the previous state-of-the-art.

Visual Attention Models
Bachelors Thesis Project
Advisor: Prof. Aurobinda Routray **Aug, 2015 - Present**
- Ongoing

Salient Object Detection via Objectness Measure
Video Analytics Lab, IISc Bangalore
Advisor : Prof. R Venkatesh Babu **May, 2014 - July, 2014**

- Proposed a method to estimate the foreground regions in an image using objectness proposals.
- Proposed and implemented a novel saliency measure which determines how tightly a pixel or a region is connected to the estimated foreground which is then used to obtain smooth and accurate Saliency Maps.
- Extensively evaluated the proposed approach on two benchmark databases. Results obtained were better than the existing state of the art approaches.

Regression based Automated Essay Scoring
Advisor: Prof. Plaban Kumar Bhowmick
IIT Kharagpur **Jan, 2015 - Apr, 2015**

- A regression based approach for automatically scoring essays written in English.
- Use standard NLP techniques for obtaining the features from the text and integrated it with an improved vector-space model.
- The results obtained are comparable to professional human raters while at a much faster rate.

Projects

Selective Search for Object Recognition
Digital Image Processing Course Project

- Implemented Selective Search, a state-of-the-art object proposal algorithm in Python.
- Integrated the above with fast-RCNN (Regions with Convolutional Neural Network Features) model to perform Object Recognition.

Grammatical Error Correction
Language Processing for E-learning Course Project

- A Grammatical Error Corrector based on Round Trip Machine Translations using python and openFST package

Intelligent Game Agents
Artificial Intelligence Course Project

- Developed a Minimax and alpha-beta search based intelligent agent for Warfare game.
- Designed GUI using Qt

Image Segmentation
Algorithms - I Course Project

- Using Prims algorithm, a minimum spanning tree was constructed. Costliest edges were removed to obtain disjoint regions/segments

Comparative Analysis of Signal Processing Algorithms for Bearing Fault Diagnosis
Real Time Systems Divsion,IGCAR, Kalpakkam
Advisor : Mr. Murali N **Winter 2013**

- This project aims at comparing how effective different Signal Processing algorithms are, in detecting these bearing faults despite the signals being noisy.
- Algorithms such as envelope detection, Empirical Mode Decompositions,FFT and techniques using morphological operators etc were implemented and their performances were evaluated.

Scholarships

Inspire Fellowship for Higher Education 2012 - 2013
Program by Govt. of India

Kishore Vaigyanik Protsahan Yojna Fellowship (KVPY) 2011 - 2012
Among Top 200, National

National Talent Search Scholarship (NTSE) 2009 - 2011
Among Top 1000, National

Scholastic Achievements

99 percentile in IIT-JEE 2012
among 0.5 million candidates, National

99.93 percentile in AIEEE 2012
among 1.1 million candidates

All India Rank 7 in National Cyber Olympiad 2012
National

Certificate of Merit, Indian National Mathematics Olympiad (INMO) 2012
Top 75, National

Certificate of Merit, National Standard Examinations in Chemistry (NSEC) 2012
Top 300, National

Certificate of Merit, National Standard Examinations in Physics (NSEP) 2012 Top 1%, Regional

Skills

Python, C, C++, Matlab, Lua
LaTeX, Qt, Git, SVN, Linux, Windows

Relevant Courses

Computer Science and Engineering

Programming and Data structures (+ Lab)
Algorithms (+ Lab)
Artificial Intelligence
Language Processing for E-learning
Parallel and Distributed Algorithms
Computer Architecture and Operating Systems

Mathematics

Mathematics I & II
Probability and Statistics
Transform Calculus
Partial Differential Equations

Electrical Engineering [1]

Digital Image Processing
Data Communication
Signals and Networks (+ Lab)
Embedded Systems (+ Lab)
Digital Electronic circuits (+ Lab)

References

Available upon request.

[1] For the complete list of courses, check EE B.Tech Curriculum