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

CONTACT INFORMATION

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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): 8.95/10.00
- Due to my excellent performance in the first year, I was awarded a department change to Electrical Engineering.

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 : Prof. Luc Van Gool **May, 2015 - July, 2015**
- Formulated Image retrieval as subset selection problem and addressed it using submodularity.
- Implemented submodular shells that quantify how relevant or representative a given subset is. Used large-margin formulation, optimized using stochastic gradient descent to learn weights for a mixture of implemented shells.
- Best results on MediaEval 2013 and 2015 Diversifying Image Retrieval datatset. We are working on submitting our work as a research paper.

Visual Interestingness of Images
Computer Vision Lab, ETH Zurich
Advisor : 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 and Eye-Gaze
Ongoing Bachelors Thesis Project
Advisor: Prof. Aurobinda Routray **Aug, 2015 - Present**

- Exploring the use of recurrent neural networks to predict our eye-gaze patterns on images and using the information accumulated over different gaze points to peform tasks like classification or recognition.
- Working on developing a realtime alertness prediction app using eye-gaze.

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 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.
- Implemented and 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
IIT Kharagpur
Advisor: Prof. Plaban Kumar Bhowmick **Jan, 2015 - Apr, 2015**

- A regression based approach for automatically scoring essays written in English.
- Used 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.

Seminars and Talks

- **Visual Attention Models** — Dec 2015
  BTP Seminar, IIT Kharagpur
- **Selective Search for Object Recognition** — Nov 2015
  IIT Kharagpur
- **Visual Interestingness and Image Collection Summarisation** — July 2015
  CVL Seminar, ETH Zurich
- **Automated Essay Scoring** — April 2015
  Centre for Educational Technology, IIT Kharagpur

Scholarships

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

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

Relevant Courses

Computer Science
Programming and Data structures (+ Lab), Algorithms (+ Lab) , Artificial Intelligence, Language Processing for E-learning, Parallel and Distributed Algorithms, Computer Architecture and Operating Systems, Digital Image Processing, Advanced Digital Image Processing and Computer Vision, Pattern Recognition and Image Understanding.

Mathematics
Mathematics I & II (includes Calculus and Linear Algebra), Transform Calculus, Probability and Stochastic processes, Partial Differential Equations.

References

Available upon request.