

Sai Srivatsa Ravindranath

CONTACT INFORMATION	Microsoft Research, India #9, Vigyan, Lavelle Road Bangalore, India - 560001	e-mail: saisrivatsan12@gmail.com webpage: saisrivatsa.com
RESEARCH INTERESTS	Computer Vision, Machine Learning	
CURRENT WORK	Microsoft Research , India Research Fellow Advisor: Prateek Jain	2016 - Present
	<ul style="list-style-type: none">• Text Featurizers: Worked on building an intelligent text-featurizer that can be run on any text dataset and be used for standard text classification tasks. Explored the use of multi-label learning algorithms such as FastXML and SLEEC trained on large hierarchies that can map text into semantically meaningful and interpretable representations.• Multi-label Learning: Explored the use of label features to improve the performance of existing multi-label learning algorithms such as LEMML and SLEEC.• Semi-supervised learning: We are working on a developing an efficient semi-supervised learning algorithm by projecting the features onto a lower dimensions in-order to effectively capture the manifold and learn a small number of prototypes which are then used to propagate the labels.	
EDUCATION	Indian Institute of Technology , Kharagpur <i>B.Tech (Hons)</i> in Electrical Engineering <i>Minor</i> in Computer Science and Engineering <ul style="list-style-type: none">• GPA (EE) : 8.82/10.00• Minor GPA (CS) : 9.40/10.00	2012 - 2016
PUBLICATIONS	“Learning Objective functions for Improved Image retrieval”. Sai Srivatsa R. , Michael Gygli, Luc Van Gool. MediaEval 2015 Workshops. “Salient Object Detection via Objectness Measure”. Sai Srivatsa R. , R Venkatesh Babu. IEEE International Conference on Image Processing (ICIP), 2015. Under Submission: “A Smart Wearable System for Classification of Alertness States”. Punyashlok Dash, Anirban Dasgupta, Suvodip Chakroborty, Sai Srivatsa Ravindranath , Au- robinda Routray, Debasis Samanta. IEEE Transactions on Mobile Computing	
RESEARCH EXPERIENCE	Learning Submodular Objectives for Improved Image Retrieval Computer Vision Lab, ETH Zurich Advisor : Prof. Luc Van Gool	Summer - 2015
	<ul style="list-style-type: none">• We formulate image retrieval as a subset selection problem and address it using submodularity.• In order to select the best subset, we learn an objective function which is a mixture several submodular shells that quantify how relevant or representative a given subset is.• Using a large-margin formulation, we learn the weights for the above mixture. We achieve state-of-the-art results on MediaEval 2013 diverse images dataset.	

Visual Interestingness of Images

Computer Vision Lab, ETH Zurich

Advisor : Prof. Luc Van Gool

Summer - 2015

- Analyzed how image content and emotions are linked to interest and built a predictive model using deep convolutional neural networks, which predicts "interest" more accurately than the previous state-of-the-art.

Alertness Prediction using Android Devices

IIT Kharagpur

Advisor : Prof. Aurobinda Routray

Spring 2016

- We developed a wearable system to detect the state of alertness of an individual using physiological and psychological features before he takes up a safety critical task.
- I was involved with the design and implementation of several psychomotor vigilance task that test the visual and auditory response on portable devices such as mobile phones and extract features from them.
- We then trained an SVM using these features to classify the state of alertness of the individual.
- Our work was also featured in major press (Hindustan Times, Times of India).

Salient Object Detection via Objectness Measure

Video Analytics Lab, IISc Bangalore

Advisor : Prof. R Venkatesh Babu

Summer, 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 and obtained results that were better than the existing state of the art approaches.

Regression based Automated Essay Scoring

IIT Kharagpur

Advisor: Prof. Plaban Kumar Bhowmick

Spring, 2015

- Proposed a regression based approach for automatically scoring essays written in English.
- We used standard NLP techniques for obtaining the features from the text and integrated it with an improved vector-space model.
- We showed that the result 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 and designed the GUI using Qt.

Comparative Analysis of Signal Processing Algorithms for Bearing Fault Diagnosis

Real Time Systems Division,IGCAR, Kalpakkam

Advisor : Mr. Murali N

Winter 2013

- We compared how effective different Signal Processing algorithms are, in detecting bearing faults from noisy signals.
- Algorithms such as envelope detection, Empirical Mode Decompositions,FFT and techniques using morphological operators etc were implemented and their performances were evaluated.

Image Segmentation

Algorithms - I Course Project

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

PRESS

IIT Kharagpur innovation to monitor fatigue level in pilots.
Stressed? Now, wear a pair of glasses and find out how much.

Hindustan Times, 2016
Times of India, 2016

AWARDS AND SCHOLARSHIPS

Inspire Fellowship for Higher Education

2012 - 2013

Program by Dept. of Science and Technology, Govt. of India

Kishore Vaigyanik Protsahan Yojna Fellowship (KVPY)

2011 - 2012

Awarded to top 250 students in India by Dept. of Science and Technology, Govt. of India

National Talent Search Scholarship (NTSE)

2009 - 2011

Awarded to top 1000 high school students in India by NCERT

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

Appeared for Indian National Chemistry Olympiad (**InCHO**). Top 300, National

Certificate of Merit, National Standard Examinations in Physics (NSEP)

2012

Top 1%, Regional