Rakshit Gautam

e-mail: raks.gautam@gmail.com Webpage: grakshit.github.io

EDUCATION

Indian Institute of Technology Delhi (IIT Delhi), India (2011 - 2015)
Bachelor of Technology in Computer Science and Engineering
CGPA: B.Tech - 7.36/10

ACHIEVEMENTS

- Secured an **All India Rank** of **115** in IIT-JEE 2011 among 0.5 million students
- Awarded **Summer Research Fellowship** from L3S Research Center, Hannover, Germany (2013)
- Received **Pre-Placement Offer** from Samsung R&D Institute India, Noida (Fall 2014)

WORK EXPERIENCE

Engineer at Samsung R&D Institute India, Noida *(July 2015 - Present)*

- **Role :** Development of Input Method Editor features for Samsung smartphones
- Have to maintain the stability of module for release of latest binaries

INTERNSHIPS

ACM Recsys Challenge: 2013, *Yelp Business Rating Prediction* *(Dr. Ernesto Diaz-Aviles)*
L3S Research Center, Leibniz University, Hannover, Germany *Summer 2013*

- Built models to predict rating that a user would assign to a business
- Applied collaborative filtering techniques like regularized SVD, biased matrix factorization, k-means clustering, linear model for the items, nearest neighbor techniques with cosine and hashing similarities
- Ensembled independent models to achieve an increment of 3% RMSE over the global user mean baseline

Driverless Vehicle: *Mahindra, Spark the Rise Challenge*
Automotive Research Team: Cube26 Pvt. Ltd., New Delhi *Winter 2014*

- Developed packages for classification of pedestrians, bicycles and cars from live street image data, on Robotics Operating System (ROS) framework
- Computed classifiers with SVM-Light using Histogram of Oriented Gradient (HOG) features

Power Test Automation and Analysis
Samsung R&D Institute India, Noida *Summer 2014*

- Developed an android application (*Sysresource*) that provides real time system load statistics
- Used Monkey Runner and Android View Client to automate power tests used for mobile testing
- Automated the process of detecting power consumption related defects in Samsung smartphones

INDEPENDENT PROJECTS

Facial Expression Recognition *(Prof. K. K. Biswas)*
Undergraduate Thesis, IIT Delhi *Fall 2014*

- Developed a real time expression recognition system for a live video input using opencv in C++
- Computed features by use of local binary patterns (LBP), local directional patterns (LDP), LBP in three orthogonal planes (LBP-TOP), geometric displacements of points obtained from shape model
- Used SVM with kernels, naive bayes and nearest neighbor classifiers for expression classification

Functional Connectivity Utility for AFNI *(Prof. Rahul Garg)*
Department of Computer Science and Engineering, IIT Delhi *Spring 2015*

- Developed a system for computing functional connectivity in AFNI (Automated Functional NeuroImaging program), that displayed the correlation maps of Functional MRI data as overlays
- Developed a GUI that allows the users to choose a region of interest (ROI), method to generate representative time series for ROI and the correlation method to compute correlation

ACADEMIC PROJECTS

Functional MRI data analysis *Spring 2015*

- Studied activation maps obtained from Functional MRI data
- Used FSL to preprocess the data and visualise the maps
- Created the maps by modelling FMRI signals as Generalized Linear Model in R

Image Morphing *Fall 2014*

- Developed a matlab program to perform image morphing through line warping and point warping
- User had to choose equivalent points or lines in the initial and final images

Study of Classifiers *Fall 2014*

- Implemented SVMs, Neural Networks, Naive Bayes, K-means, Decision trees, Linear regression, Logistic regression and Gaussian discriminant analysis for different problems

BlackJack *Spring 2014*

- Modelled the game of BlackJack as a Markov Decision Process in C++
- Computed the optimal strategy chart on the basis of player's cards and dealer's up card

AI-based Solver for Connect-K game *Spring 2014*

- Built a bot in C++ for a generalization of the Connect Four game on any board size
- Implemented UCT algorithm and Minimax algorithm with alpha-beta pruning and novel heuristics

File System Implementation *Spring 2014*

- Implemented argument passing and system calls in User Programs; Buffer cache, subdirectories and extensible files in a file-system on a skeletal C code of PintOS

Computer Networks *Fall 2013*

- Implemented a file transfer system using socket programming in python
- Implemented Learning Switch and RIP routing algorithms in python
- Studied the TCP reno protocol using NS-2 simulator for various topographies and bandwidths

Music Website Database Management *Spring 2013*

- Designed and implemented a dynamic database for music website
- Designed the music website allowing users to choose music based on likes, albums, genre, artists, moods and create customised playlists

Interpreter and Compiler for Functional Languages *Spring 2013*

- Built a Prolog interpreter (along with lexer and parser) in OCaml
- Implemented an abstract compiler for a toy functional language in Prolog

Social Network Analysis *Fall 2012*

- Analysed a hypothetical social media database. Made an interactive dashboard showing the data flows and clusters through mashups. Also conducted some hypothesis tests

Processor Simulation *Fall 2012*

- Designed a 5 stage inorder pipeline, tournament branch predictor and 3 level cache for processing the instructions in Java. Calculated the miss rates, accuracy and cycles.

EXTRA-CURRICULARS

Right to Education : *Akshayshruti Foundation (Kota, Rajasthan)* *Summer 2015*

- Motivated parents for educating their children under 'Education- a Human Right' campaign
- Prepared posters and gave presentations on the need for educating the youth

Inter Hostel Events *IIT Delhi*

- Was a part of Inter Hostel Street Play Team ('11), Inter Hostel Hockey Team ('12) and Inter Hostel Cricket Team ('13-'14)