Aashay Harlalka | **100050035**
Computer Science & Engineering | **B.Tech**
IIT Bombay | **Male**
Specialization: Computer Science | **DOB: 6 Oct. 1992**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2014	8.58
Intermediate/+2	CBSE	Vidya Niketan Sr. Sec. School	2010	92
Matriculation	CBSE	Kendriya Vidyalaya Pratap Nagar, Udaipur	2008	92.4

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 31** in IIT-JEE among 5,00,000 students *(2010)*
- Secured **All India Rank 375** and **State Rank 65** in AIEEE among more than 1 million students *(2010)*
- Awarded **Certificate of Merit for top 1%** of candidates in National Physics Olympiad *(2010)*
- Secured **International Rank 41** in International **Mathematics Olympiad** organized by SOF *(2008)*
- Recipient of **KVPY Scholarship** awarded to 200 students across all over the India (2009)
- Pursuing **Minor** in **Statistics** offered by Department of Mathematics at IIT Bombay, completed courses- Introduction to **Derivative Pricing**, Probability Theory, Statistical Inference, Applied **Stochastic Process**

RESEARCH AND PROFESSIONAL EXPERIENCES

Bell Labs, Alcatel-Lucent (*May-Jul, 2013*)

Enhancing the performance of Cellular Base Stations

- Classified the monitored data into two classes using **Regression Tree** (Supervised Learning)
- Proposed and Implemented a **Machine Learning Algorithm** to predict performance degradation in base stations using **Markov Chain** and probability distribution function
- Achieved **92% accuracy** in predicting performance degradation in Connection Success Rate

*Analysis of Caching in Cellular Networks (**Data Analysis**)*

- Analyzed the effectiveness of caching and data storage required at various levels
- Developed a model from **diurnal pattern** of data traffic and distribution of traffic across base stations
- Implemented code in **Map-Reduce** paradigm to analyze distribution of traffic across various web domains

Edelweiss Securities Ltd *(Dec-2012)*

*Received a **Pre-Placement Offer** in recognition of outstanding performance in work*

- Worked as **Algorithmic Trader** in team **Global Risk Group & Markets** on project **Risk Mgmt. System**
- Developed automated approach to test functionality of **trading algorithms** in different market scenarios
- Priced **Derivatives** and maintained order book for exchanges and segments to create market scenarios
- Made Framework to add market scenarios which determine special functionality of algorithms

Claritics Social Gaming Analytics *(May-Jul, 2012)*

- Created **SDK** for ingesting gaming events collecting relevant event data for social games
- Implemented SDK write out to the **MYSQL database** that store the raw incoming event feeds
- Enhanced **Data Buffering** to pool the events in a memory queue which is dispatched to database by a background thread not disturbing UI

KEY ACADEMIC PROJECTS

Facet Discovery and Faceted Search *(Jul 2013-till date)*

B.tech Project *Guide: Prof. Ganesh Ramakrishnan*

- Working on **labeling documents** with relevant facets using Wikipedia category and pages
- Implementing **semi supervised classifier** by user input feedback for system suggested labels

Sentence Compression *(Spring 2013)*

Course Project in Statistical Relational Learning

- Used **Integer Linear Programming Approach** to produce summary of each sentence such that it retains the most important information and remains grammatically correct

- Used cplex (provided by IBM), Berkeley parser and Stanford parser API
- Introduced **Decision variable,** applied Combined document level and sentence level **significance**, weights to each word by its level of embedding in syntactic tree, constraint to keep meaning and grammar correct

Graph Kernel *(Spring 2013)*

Course Project in Statistical Relational Learning

- Implemented a **kernel function** to compute similarity between nodes of same graph using **random walks**
- Developed and implemented a kernel function to compute similarity between graphs using all order **degree distribution of nodes**. Achieved time complexity reduction from n^3 to n^2 through this function
- Explained the strike occurred in a tailor shop in Zambia quite well

Working Capital Management and Pricing Products *(Autumn 2012)*

Course Project in Database and Information Systems

- Developed a scalable and modular package in Java for **supermarkets**
- Maximizing profits by optimally **minimizing safety stock** and increasing sales by offering discounts
- Used ER Model, Linear smoothing, Linear **Regression**, interpolence, confidence interval, Probability to make **statistical inference** about demand and optimal price

Desktop Search *(Autumn 2011)*

Course Project in Data Structures and Algorithms

- Search for relevant information of all the files in a folder matching the enquired keyword(s)
- Made a **crawler** (indexer) which crawls the whole given folder and build an index for that
- Implemented **B-Tree** and used **Taglib** package to store meta data of MP3 files
- Dealt with **huge data** (worked with **150 GB** of data with more than 50,000 files)

CODING AND DEVELOPMENT

Virtual Memory Management *(Spring 2012)*

- Implemented Virtual Memory Management for OS161 including **TLB Management**, managing swap space, physical memory and user-space pages. Used **one handed clock** page replacement policy

CFGLP Compiler *(Spring 2012)*

- Implemented a compiler supporting variables, numbers, **arithmetic expression** for integer and float
- Handled loops, conditional expression , comparison operators, normal and **recursive functional calls**
- Generated **Intermediate code** and spim assembly code and optimized the use of registers

Bomberman *(Spring 2011)*

- Implemented a **single player game** using **GUI Libraries** offered by Dr. Scheme. Used **A-star** algorithm as **Artificial Intelligence** to find shortest path. Multiple parallel events handled by **Threading**

Discrete Simulation *(Autumn 2011)*

- Developed an advanced **multi-queue simulation** for supermarkets which calculates all statistical quantities like average waiting time, avg. queue length, average service time, average server busy time

Chat Timer, Yahoo HackU 2012

- Designed an innovative product which analyses user's friends' online activity and give us graphs and information about when they generally come online

EXTRA CURRICULAR ACTIVITIES

FOOTBALL & SOCCER

Enthusiastic, Follower and Avid Player

- Played as goalkeeper in the **GC** (General Championship) **winning Hostel Football** Team at IIT Bombay
- Received **best goalkeeper** award in football in Hostel Premier League at IIT Bombay
- **Manager** of the **Woofle** (Intra-Hostel football championship) winning football team
- **Captain** of the Hostel Football GC Team, 2014 at IIT Bombay