Mayank Singh

I[st] Year PhD Scholar
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SUMMARY

- Joined IIT Kharagpur as PhD research Scholar in Dec, 2013.
- Active Member of Complex Network Research Group(CNERG), IIT Kharagpur.
- Practical knowledge of *Hadoop Environment* and *development of Map-Reduce Codes*.
- Good experience in *C programming* and *System Level Implementation* under Linux Environment.
- Gained international exposure during *summer internship in Northern Ireland* in the summer's 2011.

EDUCATION

Year	Examination/Degree	Institution	CPI/Percentage
Dec. 2013 – present	Doctor of Philosophy(PhD)	IIT Kharagpur	NA
2008 - 2012	Bachelor of Technology, Computer Science and Engineering(B.Tech)	IIT Jodhpur	8.89/10
2005 - 2007	Intermediate Examination, U.P. Board	BNSD Shiksha Niketan Inter College, Kanpur	87.6 % Among top 100 in state board examination.
2004 - 2005	High School Examination, U.P. Board	Mount Carmel High School, Kanpur	74.8% Topper of the School

MAJOR ACADEMIC ACHIEVEMENTS

- Secured **74th rank in UPTU (Uttar Pradesh Technical University)** entrance examination 2008-09 among 1,75,000 students appeared in the exam.
- Secured **S.P.I. of 10 in 6th and 8th semester** in IIT Jodhpur.
- In **top 100 among 17 lakh Students** appeared for Higher Secondary Examination, U.P. Board.
- Received **MCM** (merit cum means) scholarship during B.Tech(for complete 4 years).

PhD RESEARCH

Content based Quantification metric for Scientific Document Quality and its Impact (under Dr. Pawan Goyal and Dr. Animesh Mukherjee, IITKGP) - My research aims at investigating a novel way of measuring scientific impact by developing a metric that can quantify the quality of scientific document, thus the metric can be used for numerous applications. For example, to automate document assessment, to identify the ideas trending in a conference/journal and apply these to determine the fluctuating popularity levels of these venues, to predict which features are more responsible for a paper to get selected in a particular conference/journal etc.

PROFESSIONAL EXPERIENCE

Worked on Hadoop Ecosystem for Big-Data Analysis. Successfully worked with HDFS, Flume, Hive and Pig, setup our own cluster, and running our own developed Map-Reduce jobs. Working experience on Semantic Project for apple iTunes.

PROJECTS

- **Analyzing Power efficient techniques in Linux Kernel** (under *Dr. Gaurav Harit*, IIT Jodhpur) –Worked to improve Linux Readahead mechanism for prefetching pages. We have proposed a new algorithm that prefetches pages exponentially and then waits for longer time for next prefetching, thus increasing idle time for hard disk to a great extent. The implemented algorithm in Linux kernel gives approx. 35% efficiency over regular Linux Readahead policy.

- **Benchmarking Novelty Detection** (under *Dr. Yuhua Li*(Lecturer), *Prof. L. Maguire*(Head of School), *Dr. Ammar Belatreche*(Lecturer), University of Ulster, Northern Ireland) - **Developed a Platform where Researchers can test their Novelty Detection Algorithms and compare with known results**. The collected dataset was split into 2 classes based on the information it contains, then partitioned into a set of train and test indexes based on ten-fold cross validation using a MATLAB code. This processed data was ready to be used by any Novelty detection techniques.

- **Modeling and predicting Inflation in India (**under *Dr. Vivek Vijayvargiya*, IIT Jodhpur):- Data collected from different sources was used for modeling future inflation in India. This model can be used for predictive analysis purpose. We have taken certain features such as GDP, per capita income, import rate, import rate, etc. And trained a **linear regression model**. The Model was quite robust and was predicting with approx 75% efficiency.

- **Simulation of Virtual Memory Management** (under *Dr. Gaurav Harit*, IIT Jodhpur) - **Developed a Memory Management Unit Simulator that supports both local as well as global page replacements under demand paging**. The page fault would be serviced using a page replacement scheme (FIFO, LRU (using history bits), Clock (using reference bit)). We have simulated page replacement by updating the page table(s) of the process(es).

PRESENTATION/REPORTS
- **Presentation on Elliptic Curve Based Knowledge Proofs and Their Applicability on resource Constrained Devices**: Class presentation during Information Theory course.
- **Presentation on FreeRTOS and virtualization tool Grasp:** Course presentation on RTOS.
- **Report on Green technologies in wireless sensor networks:** Report submitted during Advanced Computer Network course.
- **Report on proof of generalized Master theorem and its variations**: Report submitted during Algorithms II course.

COMPUTER / PROGRAMMING SKILLS
- **Platforms:** Linux/Unix, Android , Windows 98/NT/2000/XP/vista
- **Programming Languages:** C ,C++, Java
- **Scripting Languages :** Python, Bash, Perl
- **Software's :** MS Office, MATLAB, LABVIEW, AutoCAD, Eclipse
- **Tools & Utilities:** Tex/Latex, Lex, Yacc, OpenMP, MySQL, Wireshark, Cain, Backtrack
- **Web development:** HTML, CSS, Jquery, PHP, Cakephp, Bootstrap.

PERSONAL INFORMATION
- **Date of birth :** April 4th, 1990
- **Present Address :** Room No D522, LBS hall, IIT Kharagpur, Kharagpur, West Bengal.
- **Permanent Address :** 32, Bada Lakhanpur G.T. Road, Kanpur, Uttar Pradesh, 208024, India.