

HAPPY MITTAL

PhD Scholar

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EDUCATION

Year	Degree	Institute	GPA/Marks
2013 - Ongoing	PhD	Indian Institute of Technology Delhi	—
2011 - 2013	M.Tech	Indian Institute of Technology Delhi	8.35/10
2007 - 2011	B.Tech	YMCA Institute of Engineering, Faridabad	9.35/10
2007	12th (CBSE)	St. Michael's Sr. Sec. School	91.2%
2005	10th (CBSE)	St. Michael's Sr. Sec. School	92.2%

RESEARCH INTERESTS

Probabilistic Graphical Models, Machine Learning, Statistical Relational Learning (SRL).

PUBLICATIONS

- Fine Grained Weight Learning in Markov Logic Networks. Happy Mittal, Shubhankar Suman Singh, Vibhav Gogate and Parag Singla. Sixth International Workshop on Statistical Relational AI (StarAI), 2016. New York, USA (*To Appear*).
- Lifted Inference Rules With Constraints. Happy Mittal, Anuj Mahajan, Vibhav Gogate and Parag Singla. Ninth Annual Conference on Neural Information Processing Systems (NIPS), 2015. Montreal, Canada.
- New Rules for Domain Independent Lifted MAP Inference. Happy Mittal, Prasoon Goyal, Vibhav Gogate and Parag Singla. Eighth Annual Conference on Neural Information Processing Systems (NIPS), 2014. Montreal, Canada.
- Analysis and characterisation of comparison shopping behaviour in the mobile handset domain. Mona Jain, Happy Mittal, Parag Singla, and Amitabha Bagchi. Elec. Comm. Res., May 2016.
- Characterizing comparison shopping behavior: A case study. Mona Jain, Happy Mittal, Parag Singla, and Amitabha Bagchi. Workshop on Big Data Customer Analytics (BDCA), 2014. *Co-located with ICDE-14*. Chicago, IL, USA.

INVITED TALKS AND PRESENTATIONS

- Invited talk at TCS Innovation Lab TRDDC, Pune, Nov 2015.
- Invited student talk at Second ACM IKDD Conference on Data Sciences, Bangalore, Mar 2015.
- Invited talk at TCS Research Labs, Gurgaon, Nov 2014.
- Poster presentation at First ACM IKDD Conference on Data Sciences, Delhi, Mar 2014.

ACADEMIC ACHIEVEMENTS

- Awarded **Tata Consultancy Services PhD Fellowship** for duration of 4 years. **2013**
- In GATE, secured all India rank of 237 among approximately 130,000 students. **2011**

- ACM International Collegiate Programming Contest : Certificate of achievement for participating in the ACM-ICPC Preliminary Online Contest. **2011**
- Secured First Position in Gurgaon Talent Search Examination (GTSE). **2007**
- Secured First Position in Maths competition organised by R.C. Gupta Memorial Trust. **2006,2007**

PROJECTS

- **Characterizing Comparison Shopping Behavior : A Case Study (M.Tech Major Project - II)** **Jan 13 - May 13**
Characterized user behavior on a mobile comparison website <http://smartprix.com>. The characterization is geared towards getting insight into the user behaviour enabling vendors offer the right kinds of products and prices, customizing the search based on user preferences, and reliably predicting the future behaviour of users. User behavior on the website is characterized in terms of sequence of transitions between multiple states, which is modelled as a Markov chain. The predictive model is built using Markov logic which can express the underlying domain using weighted first-order formulae. Formulae in Markov logic capture the important regularities in the data and their weights capture the strength of the regularity. The performance of Markov logic is also compared with two standard learning algorithms, SVM and CART.
- **Markov Logic for Social Network Analysis (M.Tech Major Project - I)** **June 12 - Dec 13**
Used Markov logic for link prediction in social networks. The prediction task involved whether there will be a tweet about a particular topic or not in the next time step. An MLN model was built using handcrafted rules, whose weights were learnt using training data. The experiments were done on a subset of twitter dataset which contained information about users, their tweets and follower links. The performance was also compared with standard logistic regression.
- **Query Evaluation in Scientific Domain (M.Tech Minor Project)** **Jan 12 - Dec 12**
Developed an application to understand user queries in natural language about the subject of data structures and categorize it appropriately. The task was to categorize the queries into various categories, such as application based, numerical, definitional, time/space complexity based queries etc. The input queries were preprocessed using Porter stemming algorithm and then the model was built using naïve Bayes algorithm.
- **Activity Detection Using SunSPOT (Course project in M.tech)** **Jan 2012 - May 2012**
Developed an activity detection application using SunSPOTS. The activities detected were jumping, running and bending. SunSPOTS have accelerometer which captures the acceleration of the object to which it is attached. By studying the patterns of acceleration statistically, activities could be identified.
- **DOM Based XML Parser (B.Tech Major Project)** **Jan 2011 - May 2011**
Created DOM based XML parser to automatically get the ICMP and SMTP ports of various mail servers.
- **C++ interpreter in C++ (B.Tech Minor Project)** **July 2010 - Dec 2010**
Created a simple C++ interpreter in C++. Lexical analysis and parsing were done without using standard tools like Lex or yacc. The parser was written using table driven parsing technique. The resulting interpreter had lot of C++ features like classes, standard I/O, operator overloading etc.

TEACHING ASSISTANTSHIP, IIT DELHI

- CSL772: Natural Language Processing **Spring 16 (Ongoing)**
- COL776: Learning Probabilistic Graphical Models **Fall 15**
- COL774/CSL341: Machine Learning **Fall 13, Fall 14, Spring 15**
- CSL333: Artificial Intelligence **Spring 14**

TECHNICAL SKILLS

- **Programming Languages** : C, C++, Java (Core), Python, Visual Basic, SQL, Matlab and SML.
- **Libraries** : OpenGL, NLTK, SciPy
- **Softwares** : Matlab, Perforce, Microsoft Office, Xilinx ISE 9.1i, Netbeans, Eclipse, Rational Rose, Visual Studio

OTHER INTERESTS

Playing and Watching Cricket, Reading Math and Singing.

REFERENCES

- **Parag Singla**
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 - **Amitabha Bagchi**
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