NARENDER GUPTA

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EDUCATION:

MS, Computer Science – *University of Illinois at Urbana Champaign* Aug 2014 - May 2016 (Expected)
Thesis Advisor: Prof. Dan Roth
Research Assistant, Machine Learning and Natural Language Processing Lab
Current GPA: 3.80/4.00

B.TECH., Computer Engineering – *National Institute of Technology Kurukshetra* July 2007 – May 2011
GPA: 9.12/10.00

ACADEMIC PROJECTS:

- **Back To Grad**: Analyzing American Graduate School Admission Process using Machine Learning and Data Mining:
  - Crawled, parsed and structured data for 100+ universities across 30+ years.
  - Performed feature engineering using ablation experiment and decision tree based feature creation.
  - Used Supervised Learning classifiers to predict admission probability to a specific school.
  - Performed pattern mining using association rule mining algorithms and null-invariant measures.
  - Computed university similarity scores from the aspect of graduate applications.
  - Proposed and implemented school recommendation algorithm using multilevel modelling.
  - Used admission probability as well as pattern mining results to generate recommendations.
  - Presented a poster in 10th UIUC CSL Student Conference 2015.

- **Past Finder**: Designed and implemented Markov Chains based history finding algorithm and system
  - Modelled dynamic graph as static snapshots to calculate state transitions across snapshots.
  - Generated a directed graph for each snapshot where a node represents an entity and the edge weights represent their interaction.
  - Assigned current affiliations of entities as current state which will decide the next state based on interaction behavior.
  - Calculated transition probabilities of each node using Markov chain property.
  - Tuned and tested the algorithm on DBLP dataset. DBLP contains the publication information for computer science conferences.
  - Used the information of who authored how many papers with whom and when to calculate edge weights between nodes
  - Assigned current university affiliations to the researchers, and predicted their historical affiliations with an accuracy of 80%.
  - Predicted second transition point and correct university affiliation for many researchers.

- **UIUC NASA JPL Space Design Competition 2015**
  - Won 2nd prize in among 40+ participating teams.
  - Designed and implemented a hazard-detection algorithm for an unknown celestial body.
  - Used the image data and height-map collected from the sensors of space rover as input to the algorithm.
  - Computed slopes, boulders and craters, extracted features based on this information.
  - Trained boosted decision tree on engineered features for various terrains.
  - Tuned algorithm for high recall rather than high accuracy because of high-risk nature of missions.
  - Secured the highest safe-site prediction score from judges on seen as well as unseen terrain data.

TECHNICAL SKILLS:

Courses completed: Machine Learning, Data Mining Principles, Computer Vision, Social Visualization, Seminar in Cognitive Science
Courses ongoing: Natural Language Processing, Social and Information Visualization, Machine Learning for Signal Processing
Programming Languages: Python, Java, C, C++
Statistical packages: Scikit-learn, Matlab, Weka

PROFESSIONAL EXPERIENCE:

Adobe Systems *Nov 2012- July 2014*

- Worked on Adobe Acrobat Reader DC. It included embedding browser framework into desktop application to bring web-like rich user interface, managing different tasks in different processes, and inter-process communication.
- Developed a web application for Salesforce app store which interacted with Adobe PDF web service APIs to create and export PDFs to other document types.
- Worked on web PDF form filling application using image renditions and server side PDF processing.
- Prototyped voice-navigated web-app architecture on the top of existing suit of acrobat.com apps.

Amazon Development Center *July 2011-Oct 2012*

- Worked on vendor facing web application portal to design and implement front-end features.
- Developed web service APIs to perform business logic on the server end. Also worked on integrating front end features with these web services using Amazon's Service Oriented Architecture.
- Implemented web application on the existing suite of internal applications for analysts to collate data from multiple web services and enable them to track payments made to vendors across different systems.

Google *Dec 2010 – Feb 2011*

- Worked as software engineering intern in Gmail load and performance testing team.
- Developed a latency debugger for Gmail backend which parsed the server logs, analyzed them based on the runtime information attached at multiple levels.
- Researched and worked on Java memory leak debugger for Gmail. It included study of Java garbage collection mechanisms and coming up with the required algorithm, before implementation.

ACADEMIC POSITIONS:

Research Assistant, UIUC *May 2015 – Current*

- Working with Prof. Dan Roth on automating university admission decision process using historic data.

Teaching Assistant, UIUC *Aug 2014 – May 2015*

- Instructed CS125, 'Introduction to Computer Science' during Fall '14 and Spring '15.
- Instructed discussion sections as well as independent seminar, 'Debug Your Brain', during Fall '14.

Student Representative, Training & Placement Advisory Committee, NIT Kurukshetra *Aug 2014 – May 2015*

- Planned and oversaw schedule and operations for company visits for jobs throughout senior year.

PATENTS:

- Method and apparatus for preserving fidelity of bounded rich text appearance by maintaining reflow when converting between interactive and flat documents across different environments.
  - *USPTO Application No: 14/260,743 (Filed on: 04/24/2014)*