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Shagun Jhaver

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Education

- **Master of Science in Computer Science** — Expected Dec 2014
  The University of Texas at Dallas, Richardson, Texas — *GPA: 3.953/4*
  Thesis: Statistical Classification and String Manipulation Algorithms using MapReduce
- **Bachelor of Technology in Electrical Engineering** — August 2010
  Indian Institute of Technology (IIT) Bombay, Mumbai, India — *GPA: 7.46/10*

Relevant Coursework & Programming Skills

- Design and Analysis of Computer Algorithms
- Artificial Intelligence
- Advanced Database: Big Data Analytics
- Database Design
- Machine Learning
- Natural Language Processing
- Discrete Mathematics
- Operating Systems Concepts

Languages: Python, Java, C++ **Operating Systems:** Linux, Windows
Miscellaneous: Hadoop, MapReduce, Pig Latin, Hive, Mahout, Cassandra, MySQL, Git, MATLAB

Research Projects

- **Developing a new system for Big Data Analytics** — Summer 2013
  Brown University — *Providence, Rhode Island*
  - ➢ Worked on a project to construct a distributed memory abstraction using LLVM and Julia that lets the programmers perform in-memory computations on large clusters in a fault-tolerant manner.
- **Hybridization Methods for the analysis of Biomolecular Networks** — May 2009 - July 2009
  Institut National De Recherche En Informatique Et En Automatique — *Paris, France*
  - ➢ Proposed a mathematical model to calculate *Violation Degree*, a measure of how far a given numerical trace is from satisfying a temporal logic specification.
  - ➢ Composed a **MATLAB** library to implement this model
  - ➢ Increased the calculation speed of *Violation Degree* by about 30 times and demonstrated the calculations for more complex specification models and properties.
  - ➢ Fashioned this library to guide the search for models satisfying a given specification.
- **Algebraic Analysis of Latin Squares** — *Aug 2009 - May 2010*
  - ➢ Executed a comparative analysis of a variety of algorithms for solving sudokus. Extended this analysis to extract results for special cases of latin squares like symmetric sudokus.
  - ➢ Designed algorithms and formulated codes in C++ to enumerate sudokus and generate *Minimum sudokus* (irreducable sudokus with unique solutions and minimum possible givens). Surveyed the outputs of these codes to predict the minimum possible number of givens in a sudoku puzzle.
  - ➢ Assembled C++ codes for enumerating sudokus and special cases of latin squares using the concepts of lexographical reduction, refined permutation and relabeling, and duplication.

Academic Projects

- **Comparative analysis of approaches to sentiment analysis of tweets** — *Jan 2013 - May 2013*
  Guide: Prof. Latifur Khan
  - ➢ Implemented an application of twitter data processing in **Java** that predicted the ratings of movies using three different approaches, and compared the ratings obtained with IMDB rating.
  - ➢ The first approach used standard lists of positive and negative words to classify each tweet.
  - ➢ The second approach used the sentiment140 api for the classification using **MapReduce**.

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- ➢ The third approach created a classification model using a training-and-testing data with naive Bayes method in **Mahout**, and then used this model to classify each tweet, thereby rating it.

- **Programming Project in Artificial Intelligence** *Jan 2013 - May 2013*
  Guide: Prof. Haim Schweitzer
  - ➢ Designed and developed a project in **Python** that simulates Nine Men's Morris board game.
  - ➢ Wrote efficient codes to output the best possible moves using the Minimax algorithm and alpha-beta pruning algorithm. The code worked correctly for both white and black players, and in the opening, midgame and end-game phases.
  - ➢ Earned the position of **first champion** in the tournament for this game in the class (76 students) using reliable and fast code and innovative self-designed static estimation algorithms.

- **Date-Intensive Text Processing with MapReduce** *Jan 2013 - Feb 2013*
  - ➢ Applied Hadoop mapreduce to derive innovative statistics from the White House Visitor Log containing 2.9 million records.
  - ➢ Wrote efficient programs in Java to output the results and used mapreduce chaining for efficiency.

- **Database Design and Implementation Project** *Aug 2012 - Dec 2012*
  - ➢ Compiled a conceptual design (EER model) for a large custom City library database project.
  - ➢ Developed a relational schema in third normal form for this design and wrote **SQL** statements to create the database and views, populate the tables and solve challenging queries.
  - ➢ Assembled the database in Oracle and used a database state to verify the correctness of queries.

Professional Experience

- **Software Developer** Jan 2011 - June 2012
  Future Bazaar *Mumbai, India*
  - ➢ Head of the *Analytics and Business Intelligence* Team.
  - ➢ Constructed an architecture to carry out ETL (extract, transform and load) processes from multiple databases (ATG, Oracle, MySQL) into a single MySQL database.
  - ➢ Conceptualized and implemented Order Life-cycle Management, a system to assign and regulate order-states to the order-items using **Python**.
  - ➢ Independently developed *sellers.futurebazaar.com*, an interface for the sellers to track orders, sales summary and product reviews, upload product inventory and edit profile settings.
  - ➢ Helped design and build the E-commerce platforms for the websites *futurebazaar.com* and *chaupaati.in* using Django, a **Python** based website framework.
  - ➢ Constructed modules for using api's of BI tools like google analytics to generate employees performance and customer behaviour data

Other Work Experience

- **Math Lab Tutor** Jan 2013 - Present
  The Student Success Center, The University of Texas at Dallas *Richardson, Texas*
  - ➢ Tutor students at the University of Texas at Dallas on an individual or group basis.
  - ➢ Assist in a wide variety of subject areas including math, physics and statistics.

Honours

- All India Rank 94 in Indian Institute of Technology Joint Entrance Exam 2006 among 300,000 students.
- All India Rank 396 in All India Engineering Entrance Exam 2006 among 500,000 aspirants.
- Selected from the state for the 4th Invitational World Youth Mathematics Intercity Competition.