Prateek Garg

Manager, Morgan Stanley
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Research Interests Distributed Systems, Query Processing Optimization on Large Scale Data Sets, Knowledge Representation & Automated Reasoning, Knowledge Discovery

Education

Indian Institute of Technology, Bombay, India
M.Tech - Computer Science & Engineering — July'13 - Jul'15
Thesis: Performance Enhancement of Big Data processing in Hadoop Distributed File System

Shri Mata Vaishno Devi University, India
B.Tech - Computer Science & Engineering — Aug'08 - May'12
Thesis: Quantitative Steganalysis of JPEG Images
Chancellor's Gold Medal, University Silver Medal, Award for Excellence

Experience

Morgan Stanley, Mumbai, India
Manager [Analytics, Intelligence & Data Technology] — Aug'15 - Present

Analytics Hub

Big-Data analytics systems that enable Financial Advisors (FAs) to run analysis over their clients' data leveraging Hadoop, Hive, Apache Spark & Apache Solr

Unified Order History

Analytics systems to enable Financial Advisors to track and monitor orders placed at Stock Exchanges for clients leveraging Hadoop, Hive, Apache Solr & Apache Spark

Next Best Action

Recommendation system, using machine learning models, for FAs for opportunities of investments/interactions based on the financial market history, client's history and client's long-term/short-term goals

Virtual Assistant

Proof of Concept for an automated question-answer system for FAs based on information retrieval from large a corpus of unstructured data (using Apache Spark) to provide answers to queries targeting "How do I..".

Indian Institute of Technology, Bombay, India
Teaching Assistant
Computer Programming — Jul'14 - Jun'15
System Administrator — Jul'13 - Jun'14

Publications

Prateek Garg, M.L. Garg, "Production Rules Based Inferences Using Fuzzy Petri Nets"
Communicated for review and publication to ACM Transactions on Computational Logic

Research Experience

Indian Institute of Science, Bangalore, India
Summer Research Fellowship — Mar'12 - May'12
Quantitative Steganalysis of JPEG Images
Advisor: Prof. K.R. Ramakrishnan
Developed & implemented a package to quantitatively estimate the amount of data hidden in stegnographed images with modifications as small as 10% to DCT coefficients.

Summer Research Fellowship May'11 - Jun'11

Video Based Traffic Analysis for Vehicle Tracking & Counting (Using Optical Flow)

Advisor: Prof. K.R. Ramakrishnan

Leveraging optical flow, implemented an automatic video based traffic analysis system that detects and tracks vehicles driving through a controlled area.

Academic Projects

Performance Enhancement of BigData Processing in Hadoop Distributed File System

Advisor: Prof. D.B. Phatak

Both the homogeneity and data locality assumptions in Hadoop are optimistic at best and unachievable at worst, potentially introducing performance problems in data centers. This dissertation explores the Hadoop data placement policy in detail and proposes a modified block placement policy that increases the efficiency of the overall system.

Virtual Time in Distributed Systems' Testing

Advisor: Prof. Sriram Srinivasan

Studied and analyzed approaches for using time as a resource to build test infrastructures for cloud that deploy lesser magnitude of hardware resources than the target systems.

Raft, a Consensus Algorithm in Distributed Systems

Advisor: Prof. Sriram Srinivasan

Implemented Raft, a consensus algorithm for managing replicated log in Distributed Systems using Go Language. Implementation includes leader election, log replication along with sustainability against dynamic crashing of functioning servers and addition of new servers.

Real Time Smart Meter Data Visualization

Advisor: Prof. Krithi Ramamritham

Developed a system that visualizes smart meter data in real time for analysis to reduce energy footprint.

Table Partitioning for Parallelism

Advisor: Prof. S. Sudarshan

Extended syntactic implementation of PostgreSQL-9.2, in context of parallel databases, to support table partitioning to handle multiple related tables. Tables on remote servers, linked to master table by referencing foreign key, are partitioned on-the-fly based on partitioning of master table

Relevant Coursework

Indian Institute of Technology Bombay

Artificial Intelligence, Information Retrieval & Mining for Hypertext and the Web, Machine Learning (Audit), Advanced Distributed Systems - Engineering a Cloud, Implementation Techniques for Relational Database Management Systems, Algorithms and Complexity

Shri Mata Vaishno Devi University

Artificial Intelligence, Neural Networks, Computer Organization and Architecture, Engineering Mathematics

Scholastic Achievements

Awarded with three prestigious awards for excelling in academics: Chancellor's Gold Medal, University Silver Medal and Award for Excellence by Vice President of India

Secured 1st rank in University during Bachelors in Computer Science & Engineering.

Awarded, twice, with fully paid Summer Research Fellowship by Indian Academy of Sciences, Bangalore on All India basis for conducting research work at IISc, Bangalore.

Full Fee waiver as a Merit Scholarship for entire B.Tech. study at SMVD University.

Secured All India Rank of 90 [99.96%-ile] out of approx. 224,000 candidates in GATE-2013.