RAVINDRA GUNTUR

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WORK EXPERIENCE

- January 2015 - Present: Research Scientist, Kaybus
- December 2013 - January 2015: Lead Engineer, Kaybus
- July 2012 - December 2013: Senior Chief Engineer, Samsung R&D Institute
- June 2009 – May 2012: Research Fellow, Department of Computer science, National University of Singapore
- August 2007-June 2009: Senior Research Engineer, Motorola Research Lab, India
- October 2005-August 2007: R&D Senior Software Engineer, Hewlett-Packard, India

ACADEMIC BACKGROUND

2006: Ph.D. (Supercomputer Education & Research Center) Indian Institute of Science, Bangalore India
Thesis: Information Theoretic Approach to Extractive Text Summarization

2000: M.S. (Supercomputer Education & Research Center) Indian Institute of Science, Bangalore India
Thesis: Active Routers for Optimal Delivery of Streamed MPEG Packets Under Low Bandwidth

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Skills and Technical Achievements

MACHINE LEARNING

- Convex optimization techniques and recommendation systems
- Neural Networks for classification
- Decision trees

TEXT & VIDEO ANALYTICS

- Extractive text Summarization
- Automatic question generation
- Clustering & topic detection
- Video segmentation
- Object recognition

PROGRAMMING

- C, JAVA
- SCALA
- APACHE SPARK

SELECT RESEARCH PUBLICATIONS

- Automated Virtual Camera During Mobile Video Playback, IEEE ICME 2014,
- Jiku: A Live Zoomable Video Streaming System, ACM Multimedia, Nara Japan, 2012
- Adaptive Encoding of Zoomable Video Streams based on User Access Pattern Signal Processing: Image Communication, Volume 27, Issue 4, April 2012
- Combining Content-based Analysis and Crowdsourcing to Improve User Interaction with Zoomable Video", ACM MULTIMEDIA'11 Scottsdale Arizona, November 2011
- Methods for Automatic Evaluation of Sentence Extract Summaries", 2nd International Conference on Universal Digital Library, Alexandria, Egypt, Nov 2006

ARCHITECTURE

- Recommendation system design combining Solr, Mongo, convex optimisation techniques and stream processing
- Reinforcement learning framework in enterprise applications.
- Algorithmic text processing system architecture.

SELECT GRANTED PATENTS

- Video caching in a wireless communication network (USPTO 8,681,758)
- Impact-based arrangement of images on an electronic display (USPTO 8,352,508)
- Technique for identifying RTP based traffic in core routing switches (USPTO 8,306,015)
- Method and apparatus for detecting predefined signatures in packet payload (USPTO 8,131,841)

Some Recent Projects

Document Recommendation System Design and Development.

Implementation: Scala and Java
Model: Information theoretic and probabilistic measures to derive an objective function. Solved using a closed-form convex optimisation expression.
Data processing: Uses Apache Spark in-memory processing for processing small bits of data from hundreds of documents per user. Also uses an events log to correlate knowledge patterns with access patterns.
Architecture: Cloud-based architecture that handles users from all the tenants simultaneously.
Infrastructure: MongoDB and Apache SOLR
Team Size: One (Algorithm implementation) Three (Deployment and supporting Java services)
My Role: Architecture, Design and Implementation

Search Analytics using a Stream-Processing Framework

Implementation: Scala
Data processing: Uses Apache Spark stream processing framework to provide real-time (micro-batch) analytics on search phrases, click positions and bounce rates. The goal is to provide a re-ranking system that works over SOLR's ranking algorithm.
Infrastructure: RabbitMQ, MongoDB
Team Size: One
My Role: Architecture, Design and Implementation

Using a Neural Network to Perform Auto-Tagging

Implementation: Scala (Part open-source, part home-grown implementation)
Goal: Given a NAS-like directory structure, determine the optimal multi-level directory structure making use of heuristics from data. The goal also includes feature engineering and determining good feature vectors appropriate for the problem.
Team Size: One
My Role: Architecture, Design and Implementation

Using a Neural Network to Detect Anomalous Patterns

Implementation: Scala (Part open-source, part home-grown implementation)
Goal: Given sequence of symbols, determine anomalous sequences. Perform feature engineering, training the neural network and design the learning framework using the neural network. Write a back propagation NN code in scala, define APIs.
Team Size: One
My Role: Architecture, Design and Implementation