Vivitsu Maharaja

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EDUCATION

Master of Science, Electrical & Computer Engineering — May 2014
University of Florida, Gainesville, FL. — GPA: 3.33/4.0

Bachelor of Engineering, Electronics & Communication — May 2011
Dharmsinh Desai University, Nadiad, India. — GPA: 62/100

EXPERIENCE

Research Volunteer, ACIS Lab, University of Florida — May 2013 - May 2014

- Set up and administered **Hadoop** & **Riak** as **NoSQL** datastores for storing and processing hierarchical data.
- Designed a data model for Riak to perform **clustering** & **tokenization** of records.
- Developed middleware in **Java** to fetch **JSON** objects from a server using **HTTP** calls & transform them to POJOs (Plain Old Java Objects). The middleware also functions as an interface to the Riak cluster.
- Evaluated the setup by **benchmarking** various parameters of the middleware like object fetch time, time to commit object to cluster & JSON parsing time.

Embedded Engineer, Volansys Technologies, Ahmedabad, India — November 2011 - July 2012

- Developed & maintained a **USB 2.0 (EHCI)** driver, to allow clients on a LAN to boot using an USB to Ethenet adapter.
- Developed components to interface with the **PCI** & **BIOS** subsystems in order to manage the complete **state machine** of the host controller & maintain driver compatibility with adapters from multiple vendors.
- Developed a network driver in **C** to allow multiple broadcast domains in a router to form a **VLAN (Virtual LAN)**.

PROJECTS

Performance Evaluation of Open vSwitch & Linux Bridge — April 2014

- Performed a comprehensive evaluation of Linux Bridge & Open vSwitch software bridges in multiple configurations.
- Designed tests to measure throughput, latency and packet loss between networks of virtual machines.

Distributed File System using Java — August 2013 - December 2013

- Designed & implemented a distributed filesystem with a peer-to-peer architecture & chunk based object storage.
- Developed software daemons to detect & react to node failures (fault-tolerance) & ensure data consistency.
- Developed a multi-threaded client application to communicate with the cluster and store data on the filesystem.

Performance Evaluation of Information Retrieval Systems using Java — November 2013

- Benchmarked the indexing time, compression ratio, recall & indexing algorithm of an Apache Solr retrieval system.
- Designed a schema to perform spelling corrections and clustering of records using Lucene's Tokenizers & Analyzers.
- Developed an application in Java to automate the record indexing process.

Web Service for Location Based Applications using Go & Redis — April 2013

- Designed and implemented a multi-threaded HTTP server that serves webpages based on a user's GPS co-ordinates.
- Scaled the server to serve 10,000 HTTP requests per second using goroutines.
- Developed a multi-threaded client simulator which makes multiple HTTP requests to the server using goroutines.

Distributed Fault-Tolerant Stock Exchange Server using Java & JGroups — April 2013

- Implemented a stock exchange server that used fault-tolerant, virtually synchronous replicas to perform stock trades.
- Enhanced the system so that client information, trade requests & stock data are preserved across node failures.

Additional projects include **Gossip based Topology Management in Peer-to-Peer Systems** using C, **DNS Server using** Java RMI, **Totally-ordered Multicasting using Lamport's logical clocks** using Java.

SKILLS

- C (Proficient), Java (Proficient), Go (Prior experience). Beginner in MPI, CUDA, HTML & CSS.
- Experience with Hadoop, Redis, Riak, Solr, GNU Make, Apache Maven, Git & SVN.
- Knowledge of Data Structures & Algorithms, Embedded Systems, Virtual Networks.

COURSEWORK

Computer Architecture, Probability & Random Processes, Computer Networks, Distributed Computing, Cloud Computing, Autonomic Computing, Information Retrieval (Guided Research), Virtual Computers.