Vivitsu Maharaja

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Education

Master of Science, Electrical & Computer Engineering — Expected graduation - May 2014
University of Florida, Gainesville, FL. — GPA: 3.37/4.0

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

Coursework: Computer Architecture, Parallel Computer Architecture, Computer Networks, Distributed Computing, Cloud Computing, Autonomic Computing, Virtual Computers.

Skills

- C, Java, Go, MPI, CUDA, Hadoop, Riak, Redis, Solr, HTML, CSS.
- Knowledge of Data Structures & Algorithms, Embedded Systems, Virtual Networks.

Experience

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

- Set up and administered **Solr**, **Hadoop** and **Riak** clusters as part of a project to benchmark information retrieval systems. As part of the Solr setup, created a Solr schema to specify biological specimen records.
- Developed a Java application to store the specimen records in Solr and Riak, using the **solrj** and **riak-java-client** client libraries.
- Designed the application to fetch and parse **JSON** specimen records from a web service, convert the JSON to POJO/SolrDocument, upload it to the Riak/Solr setup and benchmark each step of the process.
- Evaluated the Solr setup by benchmarking various parameters like indexing time, compression ratio, recall and the performance of the indexing algorithm.

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

- Developed, tested, documented and maintained a **USB 2.0 (Enhanced Host Controller Interface)** Host Controller driver, as part of an application which allowed clients to **PXE (Pre-boot eXecution Environment)** boot via a network using an USB to Ethenet adapter.
- Enhanced the driver to manage the complete **state machine** of the controller including device detection, power management and data transfer.
- Developed a feature in **C** that would allow multiple broadcast domains in a wireless router to form a **VLAN (Virtual LAN)**. Assessed, developed and delivered new feature requests from the client for the router operating system.

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 and implemented a distributed, decentralized file system based on a peer-to-peer architecture.
- Implemented modular network management, file management and cluster management daemons to ensure consistency and fault-tolerance.
- Designed and implemented a multi-threaded client module and application that communicates with the file system and stores data on the cluster.

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

- Designed and implemented a secure web application that allows a user to view different resources on the web about his location. User account details, location history & a POI database were managed in Redis.
- Project source code can be found at `https://bitbucket.org/vivitsu/goserve`.

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

- Implemented a stock exchange system 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.

Other projects include **Gossip based Topology Management in Peer-to-Peer Systems** *using C*, **Face Recognition using Artificial Neural Networks** *using C & CUDA*, **DNS Server** *using Java RMI* & **Totally-ordered Multicasting using Lamport logical clocks** *using Java*.