Abhijith Ramalingam

www.abhijith.info

a2ramali@uwaterloo.ca
github.com/Abhijith1995
lnkdin.me/p/arama

WORK EXPERIENCE

Distributed Systems Engineer | Wave Inc

Jan 2016 - April 2016

- Developed and shipped scalable, fault-tolerant backend services writen in Python and Django for the accounting product which is used by over 1.7 million users.
- Used messaging queues, database sharding, worker machines and denormalization to distribute load and perform large computations asynchronously in the background, leading to more than 90% reduction in time required to generate unique financial reports for each user.
- Stored each database change as a sequence of immutable queryable events(Event Sourcing), resulting in improved concurrency control, auditability and accuracy.

R&D Developer | DST Systems

April 2015 - Aug 2015

- Worked within applied analytics to add features, bug fixes and improvements to a big data engine which reduced large datasets by up to 20% by applying transformation rules using Hadoop, Node.js, Redis, Websockets and Rails.
- Developed a C++ and Python GUI that uses Numpy, Scikit-learn and Matplotlib to create neural-network based classifiers to authenticate users in real time based on their ECG (Electrocardiogram) which was acquired using data streamed via Bluetooth from a wearable band (Nymi).

Test Developer | HubHead Corp

Sept 2014 - Dec 2014

- Increased testing coverage by over 40% by writing end to end and unit tests for a cloud-based data quality product using Angular.js, Protractor and Selenium.
- Detected regression bugs by running automated test suites on a Jenkins CI server.

Junior Developer & QA | Protecode Inc

Jan 2014 - April 2014

- Optimised SQL of a data warehousing GUI written in C# and PostgreSQL using SQL joins, reducing project processing time by about 25%.
- Developed web crawlers in C# to download over 120,000 projects into a MySQL database from websites like Github and SourceForge.

TECHNICAL SKILLS

Languages: Python, JavaScript, Java, C/C++, Ruby, C#
Front End: HTML/CSS, jQuery, Bootstrap, React, Redux
Back End: Rails, Django , Node.js, Socket.io
Database: MySQL, PostgreSQL, MongoDB
Data Analysis: R, Matlab, Numpy, Scikit-learn, Pandas, Matplotlib
Tools: Hadoop, RabbitMQ, Redis, Git
Testing: Jasmine, Selenium, unittest, Protractor
Embedded: ARM-Keil Development Board, Arduino, FPGA, PLC

PROJECTS

- **Machine Learning Experiments :** (Jan 2016) Built a binary SVM classifier to predict the nature of a tumor based on open data gathered from an online breast cancer dataset. *Tech Used: Python, Numpy, Pandas, Scikit- Learn*
- **Bouncing Ball Game :** (Nov 2015) Wrote a game that simulates bouncing balls on the LCD screen of a microcontroller which was implemented using a multi-threaded architecture, semaphore locks and hardware interrupts to interface with peripherals. *Tech Used: C, ARM-Keil Development Board*
- **Half Fit Memory Allocator :** (Oct 2015) Developed a program to allocate and de-allocate memory in O(1) time. *Tech Used: C, ARM-Keil Development Board*
- **Path Follower :** (Sept-Nov 2015) Soldered and configured sensors and motors onto a PCB creating a small robot. Tested sensors using oscilloscope, signal generator and multimeter. Programmed the robot in C to follow a path using magnetic and light sensors.
- **Crib :** (June 2015) Built in 24 hrs during AngelHack Toronto, Crib is a Ruby on Rails chat app with a real time editable poll for users to discuss options.
- **Makeshift Caliper :** (March 2015) Calibrated the readings from an infrared sensor using a microcontroller to measure small distances. Used machine learning algorithms like Nearest Neighbor Search and Polynomial Regression to reduce measurement uncertainty to 0.15 cm. *Tech Used: Python, Numpy, Arduino*
- **Market Simulator :** (Oct 2014 - Nov 2014) Developed a program that accepts trade orders for stocks at past dates to calculate profit using data from Yahoo Finance API. Used Bollinger Bands, a stock price volatility indicator to generate trade orders. *Tech Used: Python, Numpy, Pandas*

EDUCATION

University of Waterloo

Graduating May 2018

- BASc in Mechatronics Engineering, Currently Enrolled in 3A, GPA: 3.7
- **Relevant Coursework:** Algorithms and Data Structures, Real time Operating Systems, Embedded Microprocessor Systems and Interfacing (ongoing) Digital Logic, Systems and Signals, Numerical Methods, Statistical Analysis

Online Coursework

- **Machine Learning** | Coursera — *Oct 2014 - Jan 2015*
- **Computational Investing** | Coursera — *Sept 2014- Nov 2014*
- **R Programming** | Coursera — *Sept 2014 - Oct 2014*
- **Exploratory Data Analysis** | Coursera — *Oct 2014 - Nov 2014*