Abhijith Ramalingam

www.abhijith.info

a2ramali@uwaterloo.ca
github.com/Abhijith1995
lnkdin.me/aramalingam

WORK EXPERIENCE

Distributed Systems Engineer | Wave Inc

Jan 2016 - April 2016

- Developed and shipped scalable, fault-tolerant backend services with Python and Django for the cloud-based accounting product that has 1.7 million users.
- Used messaging queues, database sharding, worker machines and denormalization to distribute load and perform heavy 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 and auditability.

R&D Developer | DST Systems

April 2015 - Aug 2015

- Worked with the applied analytics division to add features, improvements and bug fixes to a big data engine which used transformation rules to clean, reduce and prepare large datasets for analytics using Hadoop, Node.js, Redis, Rails, PostgreSQL and ActiveMQ.
- Developed a C++ and Python GUI that uses machine learning algorithms and relevant libraries (Numpy, Matlplotlib, Scikit-learn) to authenticate users in real time based on their ECG (Electrocardiogram) which was acquired using data streamed via Bluetooth from a wearable device (Nymi band).
- Built an image viewer with Node.js and Bootstrap that interfaced with eye tracking hardware to monitor user performance and generate live heatmaps.

Test Developer | HubHead Corp

Sept 2014 - Dec 2014

- Wrote end to end and unit tests for a cloud-based data quality product using Angular.js, Protractor and Selenium, increasing test coverage by 40%.
- Detected and documented software bugs, by managing the automated testing infrastructure running on a Continuous Integration server (Jenkins).

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 open source 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, Express

Database: MySQL, PostgreSQL, MongoDB

Data Analysis: R, MATLAB, Numpy, Scikit-learn, Pandas, Matplotlib

Other/Tools: Hadoop, RabbitMQ, Redis, Git

Testing: Jasmine, Selenium, unittest, Protractor

Embedded: ARM-Keil Board, Arduino, Altera DE-2 Board

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*

Audio Transcription : (Dec 2015) Used frequency analysis to transcribe classical piano pieces into sheet music. Resynthesized audio from transcription and then applied statistical analysis techniques to compare original and resynthesized audio signal. *Tech Used: MATLAB*

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) Wrote 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 Calliper : (March 2015) Calibrated readings from an infrared sensor using a microcontroller to measure small distances. Used machine learning algorithms (Nearest Neighbor Search, 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

Sept 2013 - Present

- BASc in Mechatronics Engineering, Class of 2018. 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
- **Computational Investing** | Coursera
- **R Programming** | Coursera