ABHIJITH RAMALINGAM

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www.abhijithramalingam.com | Looking for full time positions within Canada, starting June 2018

WORK EXPERIENCE

Software Engingeering Intern | Amazon (A9.com)

May 2017 - Aug 2017

- Worked on the **core infrastructure** of the **Advertising Data Platform** team, that stores and processes data from the Amazon Ad Exchange. The team is Amazon's largest data platform and handles **tens of petabytes** of data on a monthly basis, that is stored across globally distributed Hadoop clusters.
- Changed **Hadoop** source code to interface with internal Amazon encryption services, enabling tools like **Hive** and **Spark** to execute distributed queries on encrypted data stored in **S3**. This is part of a team effort to switch to **S3** from **HDFS**, thereby **reducing storage costs by 75%**.
- Performed benchmark tests with Hive, querying **hundreds of terabytes** of data in order to compare performance tradeoffs at scale between **HDFS** and **S3**.

Software Development Intern | Capital One Canada

Sept 2016 - Dec 2016

- Developed a **secure, highly-available** and **project neutral infrastructure** for releases of Data Science projects using **AWS EC2, Docker** and **Terraform**.
- Wrote a **Node.js API** that integrated with internal services and data models, to serve Mobile Beta users with their recurring monthly transactions.

Distributed Systems Engineering Intern | Wave Financial Inc.

Jan 2016 - April 2016

- Developed scalable, fault-tolerant **backend APIs** with **Python** and **Django** for a cloud-based accounting product that has **2.5 million customers**.
- Stored each database change as a sequenced, immutable and queryable event (**Event Sourcing**), to improve **concurrency control** and **auditability**.

R&D Intern | DST Systems

May 2015 - Aug 2015

- Added features and bug fixes to a **big data engine** that cleans and prepares large datasets for analytics, using **Hadoop, Node.js** and **Ruby on Rails**.
- Developed a **C++** and **Python GUI** that authenticates users with electrocardiogram (ECG) data, streamed in real time via Bluetooth from a wearable device.

TECHNICAL SKILLS

Languages: Python, JavaScript, Java, C/C++

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

AWS: EC2, S3, RDS, Lambda, KMS, CloudWatch, IoT

Tools: RabbitMQ, Docker, Terraform, Git, Maven

Front End: HTML/CSS, jQuery, Bootstrap, React, Redux

Back End: Node.js, Socket.io, Express, Django

Big Data: Hadoop, Hive, Spark

Database: MySQL, PostgreSQL, MongoDB, Redis

PROJECTS

Smart Vents : (Sept 2017 - March 2018) Cloud Lead for an IoT vent system that allows users to control individual room temperatures inside their homes using smart vents and an ecobee smart thermostat. Currently building cloud infrastructure, web API and parts of a mobile app. *Tech Used: Python, AWS (IoT, EC2, S3)*

Autonomous Mobile Robotics Labs: (Sept 2017 - Nov 2017) Implemented path planning, mapping and localization for a small personal robot (turtlebot) as part of coursework for "Autonomous Mobile Robots". *Tech Used: C++, ROS*

Personal Finance Chatbot : (October 2016) Developed a Facebook Messenger chatbot that allows users to keep track of their finances, set savings goals and visualize their spending patterns. *Tech Used: Python, Flask, Node.js, Express, AWS EC2, MongoDB, jQuery*

Audio Player : (June 2016) Designed a microcontroller system that plays .wav files from an SD card. Implemented device drivers to read data from a FAT filesystem, and send audio data through an audio CODEC for playback. *Tech Used: C, Altera DE-2 Dev Board*

Tumor Classifier : (April 2016) Used a variety of machine learning algorithms to build binary classifiers 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 an LCD screen of a microcontroller. It was implemented using a multi-threaded architecture, semaphore locks and hardware interrupts to interface with peripherals. *Tech Used: C, ARM-Keil Development Board*

EDUCATION

University of Waterloo

Sept 2013 - Present

- BASc in Mechatronics Engineering, Graduating in June, 2018
- **Relevant Coursework:** Algorithms and Data Structures, Real time Operating Systems, Embedded Microprocessor Systems Statistical Analysis, Autonomous Mobile Robots, Pattern Recognition, Programming for performance

Online Coursework

- **Machine Learning** | Coursera
- **Computational Investing** | Coursera
- **Exploratory Data Analysis** | Coursera