

ARON SAJAN PHILIP

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OBJECTIVE

Seeking the role of Lead Software Engineer, leveraging over 11 years of professional experience along with expertise in founding and managing an open-source project

EDUCATION

M.S. in Computer Science

University of Texas at Dallas, Richardson, Texas

August 2016

GPA: 3.6/4

Bachelor of Technology in Computer Science

Cochin University of Science and Technology, Cochin, Kerala, India

May 2011

GPA: 3.5/4

WORK EXPERIENCE

1.) Senior Software Engineer – General Motors, Roswell GA

September 2020 – Present

Systems and Learning Update (SLU) - Currently working on SLU capability which is going to power GM's state of the art SuperCruise and UltraCruise vehicles.

- Designed several distributed Back Office (BO) systems to procure data from vehicles – Designed micro-services and protocols in the BO that converse with vehicle's data hub and facilitates collection of data from vehicles.
- High Performance File Transfer Gateway (FTG)
 - Designed a fast asynchronous method for collecting data from streaming data channel – FTG collects data from each vehicle through a streaming data channel and store data to a cloud storage. Method employs a buffer to pull data from vehicles faster and uses an asynchronous channel to store them to the cloud storage.
 - Designed and implemented Adaptive Buffering on File Transfer Gateway (FTG) – Adaptive Buffering on FTG is a Deep Neural Network based optimization method that reacts to network transfer rate to optimize the buffer memory usage for different vehicle connections.
- Designed and developed an algorithm to logically relate and stitch sharded data coming from ADAS Compute Platform 2 vehicles – Data sharded from vehicle due to resource constraints are re-assembled back in the BO. Designed a highly scalable distributed micro-service that deals with re-assembling chunks that can come in any order.
- Designed a high-performance algorithm to determine if data is collected from a geofenced area – Geographical coordinates of the data collected from the vehicle and its proximity areas are compared against spatially indexed geofenced areas. This algorithm provides O(1) comparison time and is critical for high throughput transactions in SLU
- Lead SLU BO development team –
 - Analyzed requirements from SLU Program Management
 - Coordinated with other BO and vehicle teams where integrations are needed
 - Created Technical Design Document and UML Architectures
 - Created features and stories for Program Increment
- Received Critical Technical Talent award from GM

Technologies: Java, Springboot, Event Driven Architecture, Kafka, REST API, Protobuf, Redis, Python, Pytorch, Numpy, Oracle DB, Pandas, Jupyter Notebook, Pivotal Cloud Foundry

2.) Senior Software Engineer – General Electric Power, Atlanta GA

May 2018 – September 2020

Operations Performance Management (OPM) - Developed analytics for Knowledge Performance Indicators (KPI) on GE's OPM platform. These KPIs serves as analytic indicators for GE's power generation systems.

- Developed Java Microservices which operates on large datasets
- Created data structures for efficient and fast data retrieval

- Event Detection Platform - Created a domain specific language for performance engineers to design analytics with minimal programming knowledge. The analytics are configured through a completely GUI driven environment. The platform features network view of calculations/events, analysis of each calculation via various charts for a specific input set, analyzing the upstream/downstream of individual calculations via network view. Reduced analytics development effort and time significantly.
- Analytics Toolbox – Framework on which all the OPM analytics run. Enhanced features and performance of the Analytics Toolbox
- Developed several KPIs and deployed them for multiple power generation plants

Technologies: Java, Spring Boot Framework, Python, ipywidgets, Apache Airflow, Netflix Genie

3.) Senior Software Engineer – Honeywell Inc., Atlanta, GA

April 2017 – May 2018

Integrated Vehicle Health Management (IVHM) – Worked on the development of a prognostic vehicle health and fault detection product for the Transportation Systems team. Development involves creating a framework to accommodate different algorithms to predict vehicle faults.

- Distributed computing platform using Actor framework
- Developed build/deployment scripts for CI/CD process

Technologies: Scala, Java, Akka Actor Framework, Docker, Maven

4.) Programmer Analyst – Cognizant Technology Solutions, Chennai, India

September 2011 – June 2014

- **Automated Deployment Framework (ADF):** An extensible framework to automate deployment of applications. Contributed to the development of several modules. The project got awarded as one of the best innovation tools in Cognizant’s insurance business unit.

Technologies: C#.net, RPC, XML, Microsoft SQL Server 2008

- **Document Re-brander:** Tool to replace image and document information on vast number of report templates in a single go. Approx. 20K USD savings to client in terms of manual effort saved

Technologies: C#.net, Image processing libraries, Microsoft WordML, WMZ content decoder

TECHNICAL SKILLS

Java • Spring Boot Framework • Akka Actor Framework • Event Driven Architecture • Microservices • REST API • Kafka • Protobuf • Redis • Oracle DB • Architecture Design • Python • Pandas • Numpy • Pytorch • Jupyter Notebook

BLOGS

- **Classification model for predicting discrete time-series data in finite space** ([ref](#))- A classification model using LSTM Deep Learning technique to predict next value in a time series data where the data resides in a finite space. The method can be effectively used in Anomaly Detection
- **Network speed based adaptive buffering of streaming data** ([ref](#)) – A Deep Neural Network based optimization method on servers, that receives streaming data from client systems. Discusses about adaptive buffering capability that reacts to network transfer rate to optimize the usage of memory allocated for different types of connections.

PERSONAL PROJECTS

- **Handy-Messaging-Framework4J** ([ref](#)) ([github](#)) – **Founder and Maintainer**
HMF4J is an asynchronous messaging framework that abstracts the messaging layer from the application logic. At present supports Apache Kafka, Google PubSub, MQTT.
- **Pyhtrie** ([ref](#)) – A Hash based Trie for indexing keywords and its associated data. The data structure allows for faster data lookup. The package is listed in the PyPI repository
- **Secure Bin** ([ref](#)) – File/Folder locking tool. Had been rated as the Windows Software of the day by some of the free-ware rating websites and has, at present, a download rate of 5000+

WORK AUTHORIZATION

US Citizen