

VIGNESH RAMESH

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Education

Master of Science in Computer Software Engineering

Arizona State University; Tempe, AZ

Aug 2022 – May 2024

GPA: 3.87/4.0

Bachelor of Technology in Computer Science and Engineering

SASTRA University; Thanjavur, India

Jul 2016 – May 2020

CGPA: 7.85/10.0

Technical Skills

Languages and Databases: Java, Python, C, C++, C#, JavaScript, TypeScript, SQL, MySQL, Oracle, PL/SQL, MongoDB

Python Libraries: PyTorch, Keras, Scikit-Learn, Pandas, NumPy, SciPy, Matplotlib, Seaborn

Frameworks and Web Development: Spring Boot, Django, Flask, React, Angular, HTML, CSS

Technologies: Docker, Kubernetes, Airflow, Elasticsearch, RabbitMQ, Redis, Apache Kafka, Apache Spark, Unity, Git, Perforce

Experience

VMware

Chennai, India

Member of Technical Staff

Jul 2020 – Aug 2022

- Developed and architected a **distributed system of 10 microservices** through Spring Boot, Docker, and Kubernetes to process subscription data of VMware Cloud on AWS, attaining **99.999% service availability**
- Automated a 10-task workflow pipeline using Apache Airflow, streamlining parallel task execution and yielding a substantial **40% reduction in run times**
- Accelerated **operational speed of ETL tasks by 200%**, employing RabbitMQ, Oracle PL/SQL stored procedures, DELL Boomi integration middleware, cronjobs, and Redis caching
- Integrated Elasticsearch and Logstash with Kafka for search optimization, achieving **150% reduction** over prior response speeds
- Crafted interactive Angular UI dashboards, leading to a **20% increase** in subscription revenue tracking accuracy, enabling stakeholders to accomplish business operations and make data-driven decisions
- Owned an automated data translation tool built using Django, Pandas, Microsoft Azure, and regex that allowed translation of over **100K CSV records within 1 minute**, eliminating manual language translation efforts by 100%

Software Engineer Intern

Jan 2020 – Jun 2020

- Implemented an email automation microservice leveraging Spring Boot, SendGrid Email API, and HTML, capable of handling **data up to 80,000 characters** per email
- Analyzed and designed **functional/unit tests** with JUnit and Mockito, enforcing system reliability and 100% code coverage
- Accomplished significant **reduction of 50+ hours** of manual debugging per quarter by integrating email service with tasks involving data validation, monitoring, and alert generation

Projects

Network Intrusion Detection | Python, PyTorch, Machine Learning, Scikit-learn

- Innovated a cutting-edge neural network with autoencoder to detect intrusions on software-defined 5G networks, training over 1.2 million data points from 5G-NIDD dataset on Nvidia A100 GPUs in Supercomputer
- Achieved **0.997 F1 score** and 99.7% test accuracy in classifying intrusions, and **100%** test accuracy in detecting network intrusions

Semantic Web Application | Java, Spring Boot, Python, AWS, React, OWL, SPARQL

- Created a semantic web **search engine** for the Smithsonian American Art Museum data, integrating data points of over 35,000 artworks and 8,000 artists in Pandas
- Modeled 2 ontologies using Web Ontology Language (OWL) and deployed a **knowledge graph** on a Fuseki server hosted on AWS
- Improved back-end performance, achieving a **response time of 5 seconds** through SPARQL **query optimization** and strategic code enhancements in Spring Boot and React
- Consolidated **Natural Language Processing** capabilities using YAKE Python library and Flask to enhance search accuracy, extracting top 3 keywords from search queries

Scrum simulation CLI | Java, Maven, REST API

- Built a Java-based **Command Line Interface tool** utilizing JLine library and open-source Taiga APIs to **simulate agile processes**, cutting traditional workflow simulation time by 50%
- Engineered 3 distinct **workflow strategies** in scrum simulation: divide and conquer, push, and pull approaches, incorporating **object-oriented programming** principles

Certificates

- Google Cloud: Architecting with Google Compute Engine specialization
- DeepLearning.AI: Deep Learning specialization

Achievements

Smart India Hackathon - 2nd Rank | Python, Machine Learning, Java, Android Studio

- Led a team of 5** in the national level Smart India Hackathon to develop a **data-driven** landslide forecasting application

E-Yantra Robotics Competition | Python, ROS, Linux, V-REP, Lua, PID controller

- Triumphed as **one of top 52 teams** in the prestigious e-Yantra Robotics Competition organized by Indian Institute of Technology
- Executed 3D navigation, simulation, and **real-time path planning** of camera-sensed **Pluto drones** in Linux Operating System