

Nagaraj Archak

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Education

- 2023 – 2024 **Monash University** – Melbourne, Victoria, Australia
Master of Information Technology
Expected Graduation – December 2024
- 2014 – 2018 **National Institute of Technology, Tiruchirappalli** – Tamil Nadu, India
Bachelor of Technology
Electronics & Communication Engineering
- 2001 – 2014 **Global Indian International School** – Singapore

Courses I'm Currently Enrolled In

- 1 **FIT9136 - Algorithms & Programming Foundations in Python**
This course includes an introduction to python programming and object oriented programming concepts. It teaches python syntax, various available in-built libraries and documentation with pydocs. The course also introduces algorithms and data structures like stacks queues, sorting and searching algorithms.
- 2 **FIT9131 - Programming Foundations in Java**
This course introduces java programming along with object oriented concepts. We learn to code with classes, methods, creating class diagrams, following right syntax and documentation process by generating javadocs.
- 3 **FIT9132 - Introduction to Databases**
This course teaches the various types of database models like conceptual, logical and relational. We learn to creating database model diagrams and implement databases in SQL and NoSQL databases.
- 4 **FIT5125 - IT Research Methods**
This course introduces the various techniques to conduct research in the IT field. It teaches about reading literature, creating literature surveys, ethics in conducting research, conducting interviews for research and data privacy.

Industry Experience

2018 – 2023
India
Advanced Application Engineering Senior Analyst, **Accenture Solutions Pvt Ltd**
(Promoted from Advanced Application Engineering Analyst in December 2021)

Apr'21 - Feb'23 **Data Engineering - OTT Recommendations System**

- Built ETL pipelines that consume raw user interaction data, process them and feed them to AWS Personalize recommendations engine with a microservice API. Data pipelines were built on AWS Glue and Databricks using Pyspark and Python scripting. These pipelines consumed from a variety of source formats like S3 (csv, json, parquet) and wrote consumable data in csv format back to S3 and Delta tables in Databricks environments.
- Pipelines were orchestrated using AWS Glue Workflows or Databricks Jobs + Workflows. Some pipelines were even orchestrated by Apache Airflow. These jobs processed data in mini-batches every 15 mins. Jobs were also deployed to process months of data in bulk as well to maintain user interactions history.
- All pipelines served the purpose of preparing data to support rails like "Recommended For You" or "You May Also Like" for the OTT platform which enhance user experience and add business value to the client.
- Worked with a variety of SQL queries, AWS Crawlers and AWS Athena to analyse raw data and gain insights. Infrastructure to deploy data processing jobs was done with microservices built in golang, pulumi and terraform. Worked with Github Actions and CircleCI CI-CD tools to help with deployments.
- Setup alerts and dashboards on AWS Quicksight and DataDog to monitor data pipeline health and trigger email, pagerduty and slack notifications in case of any job failures. Additionally, worked toward refactoring several pyspark and CI-CD scripts to make the code base more readable, maintainable and extendable.

Dec'20 - Mar'21 **Competitive Benchmarking - OTT Quality of Experience**

- Designed and built a tool with Java and Appium from scratch to capture QoE metrics like app launch time, video launch time, video playback failures, video buffering through integration with partner APIs.
- The backend was built with Spring Framework and metrics were stored in SQL DB. Captured metrics were then used to design a dashboard on Grafana to visualise OTT app performance metrics over a period of time.

Jul'19 - Nov'21

Retail Product App Development with Spring Microservices

- Designed over 50 GET & POST REST APIs with Java 8, Spring Framework and learnt to implement design patterns like builder and singleton patterns. These APIs included several critical end-user facing functionality.
- Used NoSQL MongoDB database to retrieve and store data to via these APIs and learnt to construct NoSQL aggregate queries.
- Independently designed DB models and APIs for several features and worked with front-end team which helped gain an end to end backend development experience.
- Used Jenkins and BitBucket for CI-CD and wrote Junit test cases with Mockito framework. Extensively worked with Postman for API functional testing.

Jan'19 - Jun'19

Road Quality Assessment with Deep Learning

- Curated a dataset of satellite images of roads, preprocessed data and trained convolutional neural network architectures like VGG16, ResNet50, InceptionV3 and DenseNet on AWS EC2 GPU instances.
- Used regularization, early-stopping and learning rate decay to avoid model overfitting. Tuned hyper-parameters to achieve a test accuracy of 97.4% on VGG16 architecture.
- Implemented confusion matrix to analyze false positives and true negatives and built a Flask based web interface with simple HTML, CSS and Bootstrap front-end design where an user can upload an image of a road and retrieve a quality assessment from the trained ML model.

Sep'18 - Dec'18

Accenture Technical Training

- Received a formal training from Accenture's Learning and Knowledge Management Team in Python, Java, JSP, Front End Web Development (HTML, CSS), Unix, Spring Framework (Spring Boot, Spring Security) and DevOps tools like Jenkins for Continuous Integration and Deployment.

Corporate Awards

- 2022 Accenture Celebrates Excellence Award FY22 Q4
This is the ATCI (Accenture's Advanced Technology Centers in India) India level flagship award presented to high performers. I received this award in the individual category for my data engineering contributions to the OTT Recommendations Systems project.
- 2022 Accenture Products & Platforms Great Minds Award
Received this individual award for my overall contributions during the year 2022 to Accenture Products & Platforms IG (Industry Group) that I was a part of..
- 2022 Accenture Celebrates Excellence Award FY22 Q1
Received this award in the team category for my contributions to the OTT Recommendations Systems project.
- 2021 Accenture Products & Platforms Great Minds Award
Received this individual award for my overall contributions during the year 2021 to Accenture Products & Platforms IG (Industry Group) that I was a part of..
- 2021 Accenture Products & Platforms Cloud Native Engineering - Ace of Initiative Award
I was given this individual award for taking a strong initiative and ownership to build the Competitive Benchmarking tooling from scratch as well as help & train 2 other team members to upskill in Java, Spring and backend development.
- 2020 Accenture Celebrates Excellence Award FY20 Q4
Received this award in the team category for my contributions to the Retail Product App Development project.

Technical Skills

Programming Languages

Python, Java, Golang, HTML, CSS, Unix Commands

Libraries & Frameworks

Pyspark, Spring Framework, Selenium, Appium, Pulumi, Terraform, Bootstrap

Database

SQL, MongoDB, AWS DynamoDB

Cloud & CI-CD

AWS Services – Glue, Athena, S3, QuickSight, MWAA (Airflow), Personalize, CircleCI, Jenkins, Github Actions

Tools & Software

Git, Databricks, Grafana, Datadog, PagerDuty