

# MEGGNA KARTHIKEYAN

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## SUMMARY

Data Engineer with **2+ years** of experience in cloud computing, data pipeline automation, and ETL using GCP, AWS, Python, and SQL, optimizing CI/CD and migration processes at Cognizant. Currently researching gravitational wave signal analysis at UMass Dartmouth, focusing on data-driven detection improvements.

## WORK EXPERIENCE

### Data Engineer, Cognizant, Chennai, India

September 2022 - June 2023

- Enforced row-level security in GCP BigQuery and managed IAM roles, reducing unauthorized access by 90%.
- Streamlined CI/CD pipelines for data transitions via AWS Fargate, accelerating processing by 65% with Docker and AWS CloudWatch.
- Led end-to-end migration monitoring, reducing errors by 70-85%. Delivered reports while managing two teams of 5+ members.
- Enhanced cost efficiency by automating Airflow DAGs on GCP, resulting in a 12.5% salary increment.

### Programmer Analyst, Cognizant, Chennai, India

August 2021 - August 2022

- Automated ETL workflows using Python and SQL, enhancing database management and reducing manual intervention by 50%.
- Refined 50+ Airflow pipelines, enhancing data validation and reconciliation to boost efficiency by 60%.
- Developed 50+ mapping sheets, authored 3 technical documents, and drafted 2 BRDs, achieving 95% client satisfaction.
- Ensured 99% defect-free UAT, maintaining high standards in data quality and supporting timely and reliable deployments.

### Data Integration Full Stack Developer Intern, Cognizant, Chennai, India

February 2021 - July 2021

- Led a team of 150+ interns, delivering large-scale data integration projects using database management best practice.
- Improved SQL query performance by 30% across Oracle, MySQL, and SQL Server.
- Built ETL solutions with Informatica, Talend and IBM DataStage, decreasing processing time by 40%.
- Optimized cloud infrastructure on AWS and GCP, boosting deployment efficiency by 25%.

## RESEARCH AND PROJECTS

### LIGO & Virgo GW Signal Analysis for Enhanced Detection Strategies (Research)

May 2024 - Current

- Comparing LIGO and Virgo trigger patterns using simulated GW injections (mass, spin, sky location, inclination).
- Refining detection algorithms to improve triple coincidence by adjusting detection statistics for Virgo's sensitivity.

### Automated Data Pipelines with GCP & BigQuery

April 2022 - October 2022

- Automated file ingestion from GCS and table creation in BigQuery using Python.
- Built DataMarts and views based on business requirements for reporting.

### Migration of Tableau Logics to Big Query

April 2022 - June 2022

- Built dynamic pipelines from GCS to Big Query using Airflow and Python for complex file handling.
- Implemented advanced Big Query logic (pivot, dynamic materialization) and data quality checks for accuracy.

### Data Migration - From MSSQL, POSTGRE SQL to Big Query

November 2021 - January 2022

- Integrated MSSQL/PostgreSQL with Big Query using MuleSoft, EDH and AWS ECS for secure data transfer.
- Automated workflows with Airflow Python scripts and a custom Python package for table processing.

### Processing Manual files to Big Query

August 2021 - October 2021

- Built automated data pipelines between Google Cloud Storage and Big Query using Apache Airflow.
- Optimized data processing with table materialization and Big Query views based on business needs.

## SKILLS

**Cloud:** GCP (Google Cloud Storage, Google BigQuery, Google IAM), AWS (Amazon ECR, Amazon ECS, Amazon S3, Amazon Fargate, Amazon CloudWatch); Apache Kafka, Docker, Apache Airflow, EDH

**Programming:** Python, SQL, MATLAB, R, Git

**Data:** Pipelining & ETL, Warehousing & Storage, Migration & Integration, Governance & Security, Data Mining & Processing

**Tools:** Tableau, Power BI, Excel, Word, PowerPoint

**Soft Skills:** Collaboration, Communication, Problem-Solving, Leadership, Adaptability, Decision-Making, Stakeholder Management

## EDUCATION

### University of Massachusetts Dartmouth, North Dartmouth, Massachusetts

Expected May 2025

Master of Science in Data Science: Grade - 3.85/4

### Jeppiaar Engineering College, Chennai, India

September 2017 - April 2021

Bachelor of Engineering in Electronics and Instrumentation Engineering: Grade - 3.45/4

## AWARDS AND RECOGNITIONS

### Cognizant Cheers: Employee Recognition Award

Data engineering, pipeline optimization, and innovation in the Bayer A-EMEA Crop Science Warehouse project. Recognized for leadership and problem-solving.

## CERTIFICATIONS

[Tableau Certified Data Analyst](#), [Google Data Analytics](#), [Python for Data Science, Ai & Development](#), [SQL and Relational Databases 101](#), [Data Analysis with Python](#), [HackerRank SQL \(Basic & Intermediate\)](#), [Databricks Fundamentals](#)