Elsayed Rashed

Head of Data Engineering & AI/ML

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**CAREER PROFILE:**

Elsayed is outcome-oriented and task-driven Director/Chief Architect with over 16 years of hands-on experience managing and delivering world-class solutions in data engineering, data analytics, data science, and cloud computing. His expertise lies in building modern big data, data science, and cloud computing solutions to assist businesses to unlock the power of data. He has led the architecture and development of global data engineering & AI/ML projects in Australia, USA, and Middle-East. He has played client servicing and customer facing roles with a focus on helping businesses to achieve their digital transformation leveraging the power of big data and AI/ML to turn data into a major competitive advantage and creatively leveraging data & AI/ML to improve operational efficiency and customer experience.

**EDUCATION:**

* **MSc in Information Science & Technology**

Missouri University of Science & Technology; USA

* **Graduate Certificate in Business Intelligence**

Missouri University of Science & Technology; USA

* **BE in Computer Engineering** (Hons)

Alexandria University; Egypt

**SKILLS SUMMARY:**

* Big Data: Amazon EMR, Azure HDInsight, Azure Databricks, Lakehouse, Cloudera CDH, CDP
* Big Data Apps: HDFS, HBase, Hive, Spark, Kafka, NiFi, Presto, Trino, Flink, MongoDB, Cassandra
* AWS Cloud: EMR, S3, EC2, Lake Formation, Redshift, RDS, Athena, Glue, Kinesis, SNS, SQS, Lambda
* Azure Cloud: Synapse, Event Hub, Power Platform, Data Lake Storage, Data Factory, Data Catalog
* ML Frameworks: TensorFlow, Keras, PyTorch, DeepLearning4J
* ML Lib/Tools: Spark ML, Spark NLP, SpaCy, BERT, OpenCV, Athena, ESPnet
* ML Platforms: AWS ML, Azure ML, KNIME, Anaconda
* ML Categories: Computer Vision, Image Processing, Speech Recognition, Sentiment Analysis, NLP
* ML Vision: Object Detection/Identification, Face Detection/Identification, Video/Image Analysis
* ML Speech: Speech-to-Text, Text-to-Speech, Language Detection, Speaker Verification/Identification
* ML Language: Text Translation, Language Understanding, Sentiment Analysis, Topic Classification
* ML Applications: Forms Recognizer, Risk Analyzer, Video/Image Analyzer, Anomaly Detector
* Data Governance: Data Quality, Data Stewardship, Data Lineage, Data Catalog, Data Security, MDM
* Data Govern Apps: Informatica Axon, Talend Data Management
* ETL Tools: AWS Glue, Azure Data Factory, Talend for Big Data, Informatica PC, BDM
* DevOps, CI/CD: Kubernetes, Docker, Jenkins, Ansible, Git, Nexus, CloudFormation, Terraform
* Data Warehouses: Amazon Redshift, Azure Synapse, Teradata, Snowflake, SingleStore, SAP HANA
* Databases: Amazon RDS, Azure SQL DB, Oracle, SQL Server, MySQL, PostgreSQL
* ERP Systems: SAP ECC, SAP CRM, SAP SCM, Oracle EBS
* Dashboard: Power Platform, Power BI, Tableau, Qlikview, SAP SEM, Excel

**WORK EXPERIENCE:**

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| Nov 2020 – Present  Saudi Arabia | Employer: Insightful Visions  Client: Saudi Data & AI Authority  Industry: Social Media Analytics |
| Role: Head of Data Engineering & AI/ML |
| Manage and lead the Data engineering & AI/ML team to design and develop highly scalable and flexible Data Engineering and Data Analytics systems to collect, ingest in real-time and batch mode, transform, store, and govern media data from various sources such as TV channels, Audio channels, electronic program guides (EPG), and social media sites to apply analytics and machine learning models to analyze data and generate insight. | |

* Build scalable infrastructure and Big Data platforms to collect, store and process large volume of data leveraging SingleStore as a distributed data warehouse, MongoDB as a distributed document store, MinIO as object store for data lake, Spark as in-memory processing framework, and Kafka as a messaging system.
* Architect and design loosely coupling integration solution to integrate machine learning subsystems, computer vision, speech to text, text translation, sentiment analysis, and topic classification with data layer in real-time leveraging Kafka as a messaging system.
* Provide solution architecture and design for AI as a service solution to implement Computer Vision (CV), Natural Language Processing (NLP), Automatic Speech Recognition (ASR), Text Translation solutions.
* Design and lead the development of Computer Vision (CV) solutions, Object Detection, Face Recognition, Video Analyzer, and Image Analyzer leveraging Deep Learning, TensorFlow and OpenCV.
* Design and lead the development of Speech (ASR) solutions, Speech-to-Text, Text-to-Speech, Language Detection, and Speaker Verification leveraging Deep Learning, Athena/TensorFlow and ESPnet /PyTorch.
* Design and lead the development of Natural Language Processing (NLP) solutions, Language Translation, Cognitive Search, and Sentiment Analysis, leveraging Deep Learning, Spark NLP, spaCy, and BERT.
* Lead the design and development of ETL process for data extraction, transformations, and loading to extract data from data sources in real-time and batch mode leveraging Talend real-time big data platform.
* Drive the design and development of BI and data visualization solution to develop performance and operational Dashboards leveraging Tableau Server.
* Define the data governance process describing the methods used to govern data to ensure high data quality exists throughout the complete lifecycle of the data management and to ensure data is managed as an asset and transformed into meaningful information Leveraging Talend Data Governance & Quality.
* Formulate data security framework for authentication, authorization, data encryption at rest, data encryption in motion, and data masking leveraging Active Directory, Apache Ranger, and Talend data encryption and masking.

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| Oct 2019 – Oct 2020  UAE | Employer: Network International  Industry: Financial Services & Payment |
| Role: Associate Vice President (AVP), Data & AI |
| Led NI data & AI team to architect, design, and develop the company enterprise data lake solution using Azure Cloud. The data lake supports NI customer analytics activates and marketing campaigns analysis to increase internal operational efficiency, improve customer experience, and generate additional revenue. | |

* Led the Architecture and Implementation of modern Big Data and Analytics Solution using Azure Cloud services; Event Hub, Data Factory, Azure Function, Data Lake Storage, Synapse Analytics, Synapse SQL Pool, Synapse Spark pool, Stream Analytics, Databricks, HDInsight, Cosmos DB, Data Catalog, Power BI.
* Recommend and selected Azure technology options available for each tier in the lakehouse and data pipelines.
* Led the design and architecture of the lakehouse store layers using Azure Synapse & Data Lake Store, and Databricks lakehouse, Delta Lake, Delta Tables.
* Led the architecture and sizing of Azure HDInsight clusters Kafka, and Hive services.
* Deployed and optimized Apache Spark processing framework using Azure Databricks.
* Led the design and development of ETL processes, Change Data Capture (CDC), and data pipelines using Azure Data Factory, Event Hub, and Azure Functions to ingest data in batch mode and real-time.
* Architected and designed Risk Analytics solution leveraging Azure AI/ML services, Azure Metrics Analyzer, Azure Forms Analyzer, and Azure Cognitive Search.
* Designed and Architected solution to Automate financial application processing leveraging Azure AI/ML Services, Azure Form Recognizer, Azure Immersive Reader, and Azure Cognitive Search, Azure Translator.
* Define and architect the data analytics and reporting solution using Azure Synapse Analytics, Stream Analytics, Azure Power Platform, and Power BI.
* Establish standards, guidance and best practices for Azure Cloud, Big Data, and Analytics Solutions.

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| Nov 2018 – Oct 2019  USA | Employer: Citratek Inc  Client: The Depository Trust & Clearing Corporation (DTCC)  Industry: Financial Services |
| Role: Associate Director, Data & AI |
| DTCC is the premier post-trade market infrastructure for the global financial services industry. DTCC processes securities transactions valued at more than U.S. $1.6 quadrillion for securities issues from 131 countries. DTCC processes over one billion messages per month through its trade repositories. | |

* Led the Architecture and Implementation of Big Data and Machine Learning Solutions in AWS Cloud.
* Contributed to cloud strategy decisions on cloud design and best practices for implementation.
* Defined and architected data lake solutions and related services for data ingestion, analytics, and streaming use cases and coordinate operational design, development, and support for applications.
* Defined and architected Machine Learning solutions using EMR, Spark ML, TensorFlow, Keras, SageMaker to develop machine & deep learning solutions for cybersecurity and financial services.
* Designed and developed SQL data access solution for analytics leveraging AWS Athena and AWS Glue data catalog to access data in data lake & S3 with role-based access and security control.
* Participated as a Big Data & Machine Learning SME to develop Cloud solutions using AWS EMR, Hadoop, Redshift, Spark, Presto, Hive, Glue, Athena, TensorFlow, SageMaker, and Jupyter.
* Ensured all solutions exhibit “Well-Architected” framework with high levels of scalability, availability, performance, security and appropriate reusability and reliability upon deployment.
* Led and worked closely with application developers, data scientist, and infrastructure engineers to deliver scalable, highly available, and resilient solutions within an agile environment.
* Established standards, guidance and best practices for AWS Big Data & Machine Learning Solutions.

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| Jun 2018 – Nov 2018  Australia | Employer: Deloitte  Client: Major Australian Banks  Industry: Banking & Financial Services |
| Role: Senior Manager / Lead Architect, Data & Analytics |
| Big Data & Data Analytics Architect within Deloitte's Consulting to lead the architecture and implementation of big data and data governance projects for some of Deloitte ASX 50 clients (Major Australian Banks) in multi-million data driven transformations enabled by big data, cloud computing, IoT, and Analytics. | |

* Provided reference architecture and design for multi-cloud data hub solution.
* Provided best practice architecture and solution design leveraging Microservice, Serverless and Event-driven architecture patterns.
* Provided a solution architecture and design for batch data ingestion layer using Informatica Power Center and Informatica Big Data Management, Amazon EMR.
* Provided a solution architecture for the speed layer using Confluent Kafka, Informatica PowerEdge, and Informatica Big Data Streaming.
* Provided solution architecture and design for persistence layer using Amazon S3, Amazon Redshift, DynamoDB, Redis, and Elastic Search.
* Provided solution architecture and design for the serving layer using Microservices, API Gateway, Pub-Sub, Push, extracts, and content delivery consumption patterns.
* Provided solution architecture and design for data analytics and AI solutions using Amazon SageMaker.
* Provided solution architecture and design for data security solutions for authentication, authorization, data encryption at rest, data encryption in motion, and data masking using Amazon IAM, Amazon KMS, Informatica Data Masking, Apache Ranger, and Apache Atlas.

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| Sep 2017 – May 2018  USA | Employer: Capgemini America  Client: Royal Caribbean Cruise  Industry: Hospitality & Tourism |
| Role: Senior Manager / Lead Architect, Big Data & Analytics |
| Supervising and leading Capgemini consultancy team and work directly with customers and partners to architect and deliver data lake, advanced analytical, and real-time data streaming solutions on Azure, AWS and on premise. | |

* Provided leadership and management to Implement Enterprise Data Platform in Microsoft Azure.
* Led the design and Architecture of Big Data Lambda solution to meet data and analytics demands.
* Led configuring Microsoft Azure IaaS objects for Hadoop clusters and ETL process.
* Led the design and architecture of the data lake using Azure Data Lake Store (ADLS).
* Led delivering real-time data streaming solution using Tibco messaging, HBase, and Spark streaming.
* Led the design and development of data ingestion & ETL solution using Talend Real-time Streaming.
* Led the design and development of data transformation solution using Talend for Big Data.
* Led the design and implementation of change data capture (CDC) solution using Talend for Big Data.
* Led the design and delivery of CI/CD solution, using BitBucket, Jenkins, and Nexus;
* Provided best practice for Data platform design, ETL design, and real-time data streaming.

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| Dec 2015 – Sep 2017  Australia | Employer: Firstmac Financials  Industry: Financial Services |
| Role: Manager / Senior Architect, Big Data & Analytics |
| Led the full life-cycle of building a cloud-based data service platform to enable effective strategic, tactical and operational insights in the data service area to provide Firstmac a competitive edge. | |

* Developed Data Analytics & BI strategy and led the design and implementation of the transition plan.
* Designed, architected and configured cloud-based Hadoop ecosystem using Amazon EMR, EC2, S3, Kafka, HDFS, HBase, Hive, Hue, Pig, Oozie, Spark, and Apache Solr.
* Led the ETL Talend Big Data solutions design, Development Effort, environment set-up, version control and change management using GitLab, Continues Integration and Delivery (CI/CD) using Jenkins, and Artifacts Repository publishing using Nexus.
* Designed and model Enterprise Data Warehouse using Amazon Redshift. Developed and automate Talend ETL jobs to extract data from data sources, perform data cleansing and transformation, and load data to Amazon Redshift to make data ready for reporting and analysis.
* Drove Talend ETL jobs development to ingest data to Hadoop Data Lake from Web server logs, Google Analytics, BigQuery, LiveChat, Salesforce, MongoDB, Retail Banking, and RDBMS.
* Designed and implemented Apache Solr Cloud search engine solution at Amazon AWS to provide search and analytics capabilities across structured, semi-structured and unstructured datasets. The solution initially implemented for partner search complaint to complex hierarchical data access control list.
* Designed and developed performance and operational Dashboards for Marketing, Sales, Operations departments using Tableau. Tasks involved define KPIs, identify data sources, Developed ETL programs to extract data

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| Jan 2014 – Nov 2015  Australia | Employer: Robert Bosch Australia  Industry: Logistics & Supply Chain |
| Role: Senior Architect, Big Data & Analytics |
| Led Big Data architecture, ETL process, and Analytics activities to effectively collect, transform and analyze data to enable the planning department improve Forecast Accuracy, Bosch Logistic Centre to minimize inventory level, Customer service department to Improve Customer Service level, procurement department to improve vendor service level and minimize vendor backlogs, and Bosch Call Center to improve customer experience. | |

* Led building scalable infrastructure and Big Data platforms to collect, store and process supply chain network data to power Robert Bosch Sales & Marketing analytics solution. The solution enables strategic decision making by actively revealing and presenting emerging trends and opportunities across the entire supply chain network and customer lifecycle.
* Implemented and developed ETL process for data extraction, transformations, and loading to extract data from SAP, Forecast & Planning System, SAP HANA and ingest data to Big Data Lake.
* Drove the designed and developed of BI and data visualization solution using Tableau Server to develop monthly Dashboards; Sales & Customer Service Level Dashboard, Supply & Vendor Service Level Dashboard, and Planning & Forecast Dashboard using Tableau Server and Tableau Desktop.
* led “Material Distribution” Project to understand customers ordering behavior and identify most costly customers based on cost to serve calculations; Project involves identifying cost drivers for Sales Order Processing, Customer Service, Claim handling, Logistics Execution and transportation; Extract data from SAP ERP systems; visualizing data and present recommendation.

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| Jul 2012 – Dec 2013  Australia | Employer: Fujitsu Australia  Client: Northern Territory Government (NTG)  Industry: Government |
| Role: Data Architect |
| The Northern Territory Government (NTG) uses SAP PM that provides varying capabilities to manage and maintain government Assets. The project objective is to migrate data from legacy system and develop an interface between SAP PM and GIS system to automatically pass technical objects data and master data to GIS system. | |

* Created design specifications for data migration requirements. Prepared data extraction queries and developed data loading programs. Ensure data validation and business rules are enforced during data migration and load processes. Resolved all issues related to data migration and integration points.
* Managed a team of 4 consultants to determine requirements, translate requirements into technical design specifications, and design the interface data model. Developed the interface solution to send and receive data between the Maintenance Management and GIS Systems, Create and update assets, maintenance notifications and maintenance orders in the GIS system.
* Coordinated resources and developed project schedule and final report, provided functional and technical training to end users as required. Worked with customers’ maintenance personnel to answer their questions about the software as it pertains to their respective area of expertise, and provided technical direction to customers’ IT staff.

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| Oct 2008 – Jun 2012  Qatar | Employer: Qatar Energy  Industry: Oil & Gas |
| Role: Senior BI & DW Engineer |
| Participated and actively contributed throughout several BI, Database, and Data Warehouse projects. My responsibilities involved Dashboards and Scorecards architecture and design, KPI identification, KPI calculation & data sources identification, Database & Data Warehouse design, Data Modeling, and BI reports development. | |

* Subject matter expert (SME) in Data Warehouse & Database Design, Data Normalization, Data Integration, Data Extraction, and ETL process; this involved design logical data models, convert logical data models into physical data models, normalize data model, deploy physical data models to RDBMS, write complex SQL queries, develop database stored procedures and triggers.
* Managed and led the design and development of a highly customizable and flexible Automatic Business Reports system to provide analytic and reporting framework to support managers and decision makers. The reporting data warehouse collected data from various systems including SAP ERP system, in-house developed applications and purchased systems.
* Managed project requirement, scope, cost estimation and delivery time frame to integrate SAP HR module with Healthcare Information System to synchronize Employee master data from SAP HR module to the patient record in the Healthcare system.