Kusal Hettiarachchi, Data Science Engineer

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LinkedIn, GitHub, Google Scholar, StackOverflow, Kaggle, Website

Profile

A Data Science Engineer with almost 4 years of industry experience in fintech and martech domains, a solid background in computer science, and a proven track record in software and data engineering. Key areas of technical strength include building performant web backends, implementing data processing platforms, and data science experimentation. I am a great team player with experience in leading small, agile development teams. Interested in career opportunities involving; building scalable, sustainable, data-intensive systems, improving processes using predictive modeling, and deriving actionable insights out of massive amounts of data.

Employment History

Senior Data Science Engineer, Arimac – Sri Lanka   **February 2021 – Present**

SocialReach (Social Listening Tool)

- Leading the development team and directing the SocialReach product team technically by managing the backlog and planning sprints with the product manager.
- Building the next generation data processing platform of the Social Listening Product on Azure cloud. This platform implements a Lambda architecture leveraging Azure Data Factory, Azure Synapse Analytics and Azure Machine Learning.
- Helping to grow the product by researching and introducing new language analysis features using production-ready technologies.
- Ensuring the code quality and maintainability by advocating GIT best practices and conducting code reviews.

Notable Contributions
- Productionalized multiple machine learning models and streamlined the future machine learning workflows by implementing Azure ML experimentation pipelines.
- Identified the poor response time in computationally heavy aggregate queries and improved it by a margin of 50% using a server-side caching layer.
- Enabled advanced querying on top of the existing text data using a full text search implementation.

    Key Technologies:
    Azure Synapse, Azure ML Studio, AzureML SDK, Azure Function Apps, Azure Service Bus, Azure SQL, Apache Spark, Apache Solr, pandas, FastText, Gensim, PyTorch, FastAPI, Selenium

Visa Payment Panel (Public Survey Application / Integrated Reporting Tool)

- Lead the backend and data teams and engineered the product.
- Interfaced with international clients to understand their requirements and translate them to technical specifications.

Notable Contributions
- Implemented a modern data warehouse from scratch using Azure Synapse. Fully automated ELT pipelines were built to ingest data from operational databases as well as legacy data sources. Data Marts were developed with tables optimized for supported queries.
- Developed the reporting sub system from scratch. This system seamlessly integrated the application data marts with industry standard reporting tools such as PowerBI and SPSS. The automated reporting workflows which were implemented on top of asynchronous messaging and shared cloud storage, enabled complicated business use cases such as cloning, extending, and re-executing reports.

Key Technologies:
        Azure Synapse, Azure Data Factory, Azure CosmosDB, Azure Database for MySQL, Azure Keyvault, Azure Data Lake Storage Gen2, Azure Graph API, PowerBI, PowerBI Embedded, IBM SPSS, Spring, JUnit, Elasticsearch, Puppeteer, Liquibase

Miscellaneous Contributions

- Prototyping for potential projects and demonstrating the proposed methodologies at pitching sessions.

Research & Development Engineer, Minds & Codes – Sri Lanka   October 2020 – January 2021

- Carried out product research and conceived the idea of the initial product.
- Designed and implemented the data collection sub-system and collected an initial dataset.
- Analyzed the initial datasets for identifying sentiment and mining opinions.

    Key Technologies:
        Javelin, WSO2 ms4j, Selenium, Jupyter, CoreNLP, pandas, CouchDB

Software Engineer, DirectFN – Sri Lanka   January 2019 – September 2020

MTR(B2C) / B2B (Enterprise Integration Tools)

- Communicated with the stakeholders to clarify requirements, developed the SOAP contracts, and prepared the integration documents.
- Integrated IBKR platform with the core trading solution by introducing new asynchronous messaging resources on top of existing infrastructure and by implementing service interfaces.
- Integrated DFN Pro11, the latest client terminal software, with an external Order Management System which was a REST based API.

    Key Technologies:
        J2EE (EJB, Servlets, JMS, JAX-WS, JAX-RS), Apache Akka, Apache Camel, Spring, IBM Websphere, Oracle Database, SOAP, REST

DFNBI/AML (FinReg Product)

- Implemented, tested, and deployed new real-time and batch analysers to UAT/Production environments. An analyser is a rule based module which produces a set of alerts which can then be processed by the compliance staff.

Notable contributions
- Reduced the memory footprint of AML analytical engine by a factor of (-)16 by identifying a memory leak and fixing it by analyzing JVM heap dumps.
- Fixed a critical, framework-level bug which was affecting the stability of the AML analytical engine and improved its availability.
- Productionalized a single-tenant, SaSS AML solution after implementing the customizations requested by the client while working on-site.

    Key Technologies:
        Apache Akka, Apache Camel, Spring, NodeJs, AngularJs, JXray, Oracle Database, MongoDb, Jasper Reports

Market Data Backend (FinCon Product)

- Designed and implemented an indicator server as a part of a two-person team which calculates a set of technical indicators real-time.

- Gained hands-on experience in implementing several technical indicators (Average Directional Index, Bollinger Bands, etc.) and candlestick patterns.

    Key Technologies:
    Apache Netty, REST, Jdbi, Log4j, JUnit, HSQLDb, JProfiler

Miscellaneous contributions

- Developed a prototype on behalf of the DevOps team to register and spin-up a range of testing environments. This tool could run scripts remotely and stream logs to the web interface.
- Developed a model microservice deployment using Docker swarm on behalf of the CMS team.

    Key Technologies:
    ExpressJs, SQLite3, Jade Templates, Docker, GCP, WebSockets

Intern Software Engineer, DirectFN – Sri Lanka   July 2017 – Dec 2017

- Developed an alternative symbol search service that outperformed the existing core service in terms of latency. The service was implemented by extending the query parser, processor chain, data importer, etc. on top of an Apache Solr text search platform.
- Developed a tool that enabled the inter-protocol translation and visualization of price feeds, which were originally encoded in a proprietary protocol. The tool was used internally by the BA team in the market data team.
- Developed a parametrized automation script that could deploy an interdependent backend server suite and a server health monitoring tool in Unix environments. This tool was used by the market data backend team to spin up testing environments.

    Key Technologies:
    Apache Solr, Apache JMeter, matplotlib, Bash, Netdata, Apache Cassandra

Freelance Experience

Mafhh Consultants, UK   Feb 2019 – Sep 2019

Ktool (Kubernetes Abstraction Layer)

- Developed a backend and a web client to create, manage, and monitor Kubernetes clusters on GCP, AWS, and Azure.
- Implemented a metadata management service which can scrape pricing, resource, and availability data from cloud service providers. This system was a supplementary component for the above mentioned tool.

    Key Technologies:
    GoLang, Go SDKs (AWS, GCP, Azure), ReactJs, MySQL, Docker, Selenium, Flask

Breaking Mediator (Automated News Aggregator)

- Developed an event-driven API to bulk process news articles on a pre-configured set of topics.

    Key Technologies:
    ExpressJs, ElasticSearch, Docker

Tactical Trader, USA   Jul 2021 – Present

- Developing technical indicators and position strategy algorithms on an online trading platform which encapsulates multiple asset types.

Key Technologies:
NodeJs, AngularJs, Wordpress, PostgreSQL, AWS

Miscellaneous Clients, (Fiverr, Upwork)   Jan 2018 – Present

- Developed software and performed data science tasks for multiple clients.
- Developed a telegram bot to process trade signals and place orders on Binance crypto exchange.

International Experience

Software Engineer, MDC –Riyadh, KSA   Dec 2019

- Conducted a series of training sessions on the AML tool for the compliance team at one of the major clients.
- Deployed a customized SaSS solution for a new client.

International Academic Conference, ICDMAI – Malaysia   Jan 2019

- Participated as a researcher and presented a [paper](#) on implementing a generalized ensemble machine learning model to predict landslides, to an academic audience.

Professional Certifications

Azure Certified Data Scientist – Associate   May 2021
- [Certified](#) for MLOps skills on Azure Machine Learning platform.

Education

BSc. (Hons) Engineering in Computer Science & Engineering   Nov 2014 – Dec 2018
University of Moratuwa– Sri Lanka
Second Class Upper Division (GPA: 3.63)

G.C.E Advanced Level Examination – Physical Science Stream   Aug 2013
National rank: 9
Z–Score: 2.79

Extra Curricular Activities

- Participated in the IEEEXtreme Algorithmic Coding Competition
    - 2016: National Rank 14th
    - 2017: National Rank 13th

Sports

- University colors for Athletics in 2016, 2017.
- Won the Inter University Games Cricket championship in 2015.
- Won the Best Athlete award in the `Flying Shoe` Athletics meet in 2016.

Publications

[A Generalized Ensemble Machine Learning Approach for Landslide Susceptibility Modeling](#) **Sep 2019**
(ICDMAI 2019)

Languages

- English (IELTS Academic 8.0)

Referees

- Kuganesan Srijeyanthan
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