Case Study

Automated MLOps pipeline (CI / CD / CT) for Indian Manufacturing Giant

Client Overview

- A leading global sleep tech solutions company with a vision to help India sleep better. Backed by continuous innovation and research, the client manufactures technology-led mattresses, pillows, protectors among other sleep tech solutions.

Business Challenges / Need

- With a growing list of data sources, identifying the best sleep pattern recognition model by iterating through a combination of different features, models and hyperparameters manually, delayed the time-to-market of new features

- Automate the complex process of training and deploying the models into production

- Compare the various models and identify the model with best possible outcomes and deploy it into a serving / inference infrastructure

Solutions

- An automated MLOps pipeline (CI / CD / CT) in AWS was developed. The pipeline contains an AWS Lambda function that triggers the CT workflow

- The CT workflow extracts training data from AWS DynamoDB, creates notebook on AWS SageMaker, initializes lifecycle configuration to execute scripts and train different ML Model iteratively

- Model metrics such as accuracy, macroF1 score, precision, recall etc. of the different models are retained in AWS S3 for comparison and identification of the best fit model

- The best model is identified, deployed and served as prediction API using AWS CodeDeploy and AWS CodePipeline

Technology Stack

- AWS Lambda, AWS DynamoDB, AWS SageMaker, AWS S3, AWS Fargate, AWS CodePipeline, AWS CodeDeploy, Python, Git

Business Impact

- **2x faster model re-training and re-deployment** with Indium's automated end-to-end MLOps pipeline

- Ability to seamlessly evaluate KPIs of various models and choose the best outcome with **zero manual intervention**

- **Higher data science productivity** with end-to-end automated MLOps pipeline

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