

SUCCESS STORY



AUTOMATION OF SLEEP MONITORING ANALYTICS THROUGH MLOPS

PROJECT OVERVIEW

Implemented MLOps pipeline for automating the model training and deployment phases, leveraging AWS SageMaker.

SOLUTION DELIVERED

MLOps pipeline leveraging AWS SageMaker

CLIENT DOMAIN

Manufacturing & Hi-Tech

KEY HIGHLIGHTS

- End-to-end automation of the entire machine learning pipeline, from training to deployment, was achieved by leveraging AWS and Python.
- Continuous model training with new datasets resulted in a 50% improvement in the overall efficiency of the ML models.
- Various components of AWS SageMaker were leveraged to implement best-in-class MLOps, leading to a 30% reduction in turn-around time.

ABOUT CLIENT

The client is a major manufacturer of mattresses and provides advanced sleep technology solutions through smart health/sleep cycle monitoring applications.

BUSINESS REQUIREMENTS

- Automate the complex process for training the models and deploying them into production, which requires updating multiple systems.
- Compare the various models being executed to obtain the best possible outcomes and deploy the superior model into production.

SOLUTION HIGHLIGHTS

- Indium architected a seamless MLOps pipeline leveraging AWS SageMaker for continuous training of sleep pattern recognition models. These models extracted data from smartwatches and other appliances, allowing analysis of users' heart rate and respiration in addition to the data collected from the mattresses.
- The MLOps pipeline was built using AWS SageMaker to create repeatable training workflows, accelerating model development. Source code was extracted from DynamoDB, and Lambda functions were used to trigger the MLOps pipeline.
- The SageMaker setup was initialized with a Lifecycle configuration to execute the scripts and ML models. The model results, including evaluation metrics such as accuracy, macroF1 score, precision, recall, etc., were stored in S3 buckets.
- The metrics from various models were used to compare and select the best model for the dataset. Based on this evaluation, the old model was either retained in S3 or replaced with a newer model that demonstrated better evaluation metrics.
- The model's output was released as an API for prediction, and AWS CodePipeline was utilized for continuous integration, while CodeDeploy was used for continuous deployment.

BUSINESS IMPACT

- Reduce manual effort and time by 2x to train models or trigger the deployment pipeline when new features are added, or existing features are enhanced.
- Seamlessly evaluate the KPIs of various models and choose the best outcome without manual intervention.

TECH STACK



AWS CodePipeline

ABOUT INDIUM

Indium Software is a fast-growing Digital Engineering company, focused on building modern solutions across Applications, Data, and Gaming for its clients. With deep expertise in next-gen offerings combining data and applications, Indium offers a wide range of services including Product Engineering, Low-Code development, Data Engineering, Ai/ML, Digital Assurance, and end-to-end Gaming services.



USA

Cupertino | Princeton
Toll-free: +1-888-207-5969

INDIA

Chennai | Bengaluru | Mumbai | Hyderabad
Toll-free: 1800-123-1191

UK

London
Ph: +44 1420 300014

SINGAPORE

Singapore
Ph: +65 6812 7888

www.indiumsoftware.com



For Sales Inquiries
sales@indiumsoftware.com



For General Inquiries
info@indiumsoftware.com

