

Deployment of ML Models for Optimized Physician Engagement Recommendations

Leveraging Data Science and MLOps
to Optimize Physician Engagement
in Pharma

CLIENT

**One of top 10 global
BioPharma companies**

Therapy Areas:

**Oncology, Cardiovascular
disease**

INDUSTRY

Life Sciences

ML Ops Tech Stack:

**Snowflake, Databricks,
Gitlab, MLflow**



BUSINESS IMPACT

- Efficiency Gains: Monthly run time of models was reduced by up to 60%.
- Accelerated Time-to-Market: MLOps integration enabled faster deployment and delivery of the machine learning models.
- High performance: Model monitoring was enabled to ensure the models performed as expected in real-world scenarios.



BUSINESS REQUIREMENT

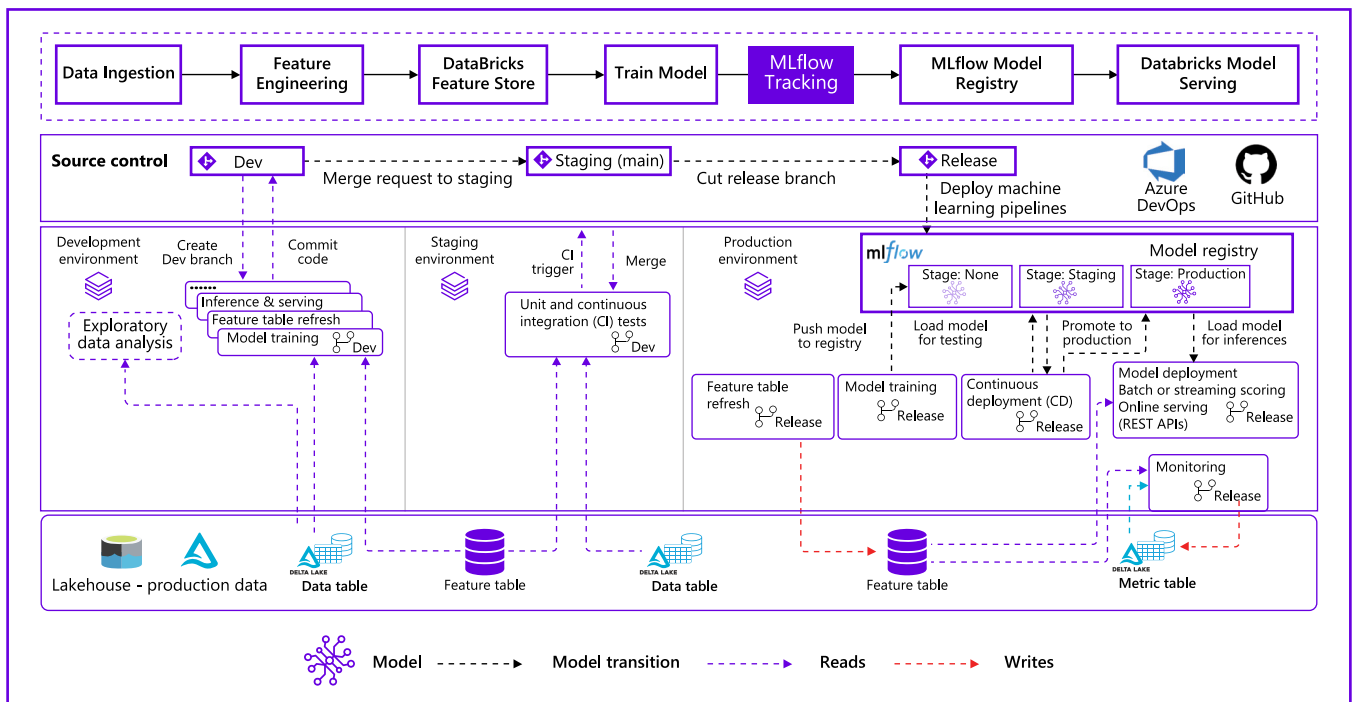
- The client had a suite of ML models created by internal and external partners. Most of these were propensity models designed for Next Best Action (NBA) to optimize recommendations for HCP Engagement across oncology and cardiovascular therapy areas.
- They wanted to develop an in-house end-to-end MLOps framework to streamline the deployment process and ensure smooth ongoing maintenance for the ML solutions.

C5i SOLUTION APPROACH



- Implemented an end-to-end MLOps workflow that streamlined and automated the data pipeline, modeling pipeline, and inference pipeline. This drove efficiency, minimized errors, and optimized resource utilization.
- Created a comprehensive feature store that organizes the feature-engineered data (like sales, claims, promotion, affiliations, lab, etc.) that can be used in different environments and models.
- Improved model performance based on client's request by collaborating with the data science team. Example: Developed a voting classifier utilizing various machine learning algorithms such as XGBoost, RandomForest, LGBM, Tabnet, etc.
- Deployed model monitoring and enhancement components based on industry standards for security and governance.

MLOPS IN ACTION – DATABRICKS ARCHITECTURE



Development - In the development environment, data scientists and engineers develop machine learning pipelines.

Staging - In the staging environment, CI infrastructure tests changes to machine learning pipelines in an environment that mimics production.

Production - Machine learning engineers manage the production environment, where machine learning pipelines directly serve end applications.

About Us

C5i is a pure-play AI & Analytics provider that combines the power of human perspective with AI technology to deliver trustworthy intelligence. The company drives value through a comprehensive solution set, integrating multifunctional teams that have technical and business domain expertise with a robust suite of products, solutions, and accelerators tailored for various horizontal and industry-specific use cases. At the core, C5i's focus is to deliver business impact at speed and scale by driving adoption of AI-assisted decision-making.

C5i caters to some of the world's largest enterprises, including many Fortune 500 companies. The company's clients span Technology, Media, and Telecom (TMT), Pharma & Lifesciences, CPG, Retail, Banking, and other sectors. C5i has been recognized by leading industry analysts like Gartner and Forrester for its Analytics and AI capabilities and proprietary AI-based platforms.



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