ML Ops

AI models – beyond the limits of experiments

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Agenda

Once upon a time…
AI Experiments
- Moving from Data to AI driven
- Roles and architecture for AI development

Observations
- Datalake / Data store / Pre-processing / Features
- Performance
- User experience / Maturity

Solutions
- MLOps – roles and architecture
I need to collect, manage, secure **my data**

Let’s build a **datalake**...

Yes, but... how do I **leverage** my data now?

**CIO**

**CTO**

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**Business Teams**
*(Ops, Mkg, Dev...)*

We need to address **use cases**
(automate, predict, decide...)

Let’s build **AI models**...

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**AI driven scenario**

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**Data driven scenario**

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Yes, but... how do I **access data** and **scale** my models now?
**Data & AI Experiments Architecture**

Data Stores
- Data Store (online)
- Data Lake (offline)

**Block Storage HDFS & Private Cloud**

**Notebook**
- Data Analysis
- Data Transform & Validation
- Feature Extraction

**ML & DL Framework**
- Supervise Training or Unsupervised
- Experiment AI Model Evaluation & Validation

**Web App**
- Confusion Matrix
- Recall, ROC...

**AI Roles:** Data Eng, Data Analyst & Data Scientist

Then… what about model testing, monitoring, scaling?
Data & AI Experiments - Experience & Observations

- AI Model developers and Business Users don’t speak the same language
- Data transform & validation often points out business challenges
- "Performance" is not understood the same
- Deliver AI Model asap
  Upgrade easily
- Understand user expectation & User Experience
- Address ML Lifecycle
- Assess your Maturity

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How to deploy ML models in Operations?

Today only 20% Companies can Deploy and to Operate ML models in operation & with Acceptable ROI
Five AI Maturity dimensions

**Strategy**
The plan of action for achieving the desired level of AI maturity in the organization.

**Governance & Process**
The policies, processes and relevant technology components required to ensure safe, reliable, accountable and trustworthy AI solutions.

**Organization & People**
The leadership practices as well as roles, skills and performance measures required for people to successfully build and/or work with AI.

**Data**
The data required to support specific AI techniques defined by the AI strategy.

**MLOps**
The technical infrastructure and tools needed to train, deliver and manage AI models across their lifecycle.

Readiness for MLOps
At Maturity level from 3-4 / 5

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MLOps: Scale ML beyond the limits of experimentation

cover the entire ML lifecycle and all of the user roles necessary to create ML production systems
Key takeaways

- Developing AI pipelines as a first step to move towards an AI-driven Company
- Maturity of your Company shall be assessed to define and track a Transformation Plan, including roles and Governance
- ML Engineer as a key player to liaise between AI developers and Business Owners
- MLOps platforms will bring the capability to manage the entire lifecycle of AI
- Testing, monitoring, scaling models are key from the very beginning
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