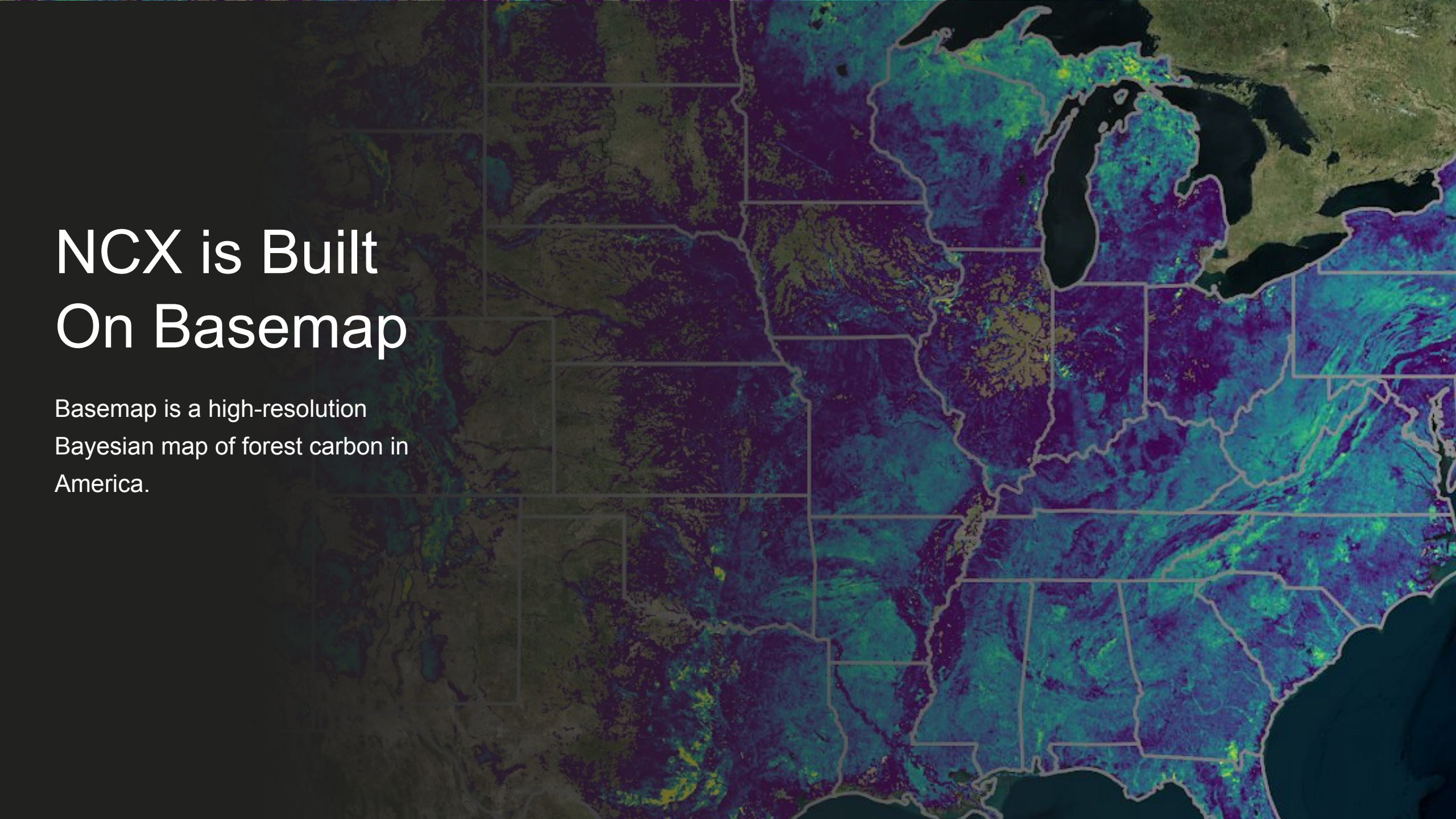
MLOps in a Bayesian workflow

Tracking experiments with MLFlow

Max Joseph, PhD
Data Scientist, NCX Basemap Team

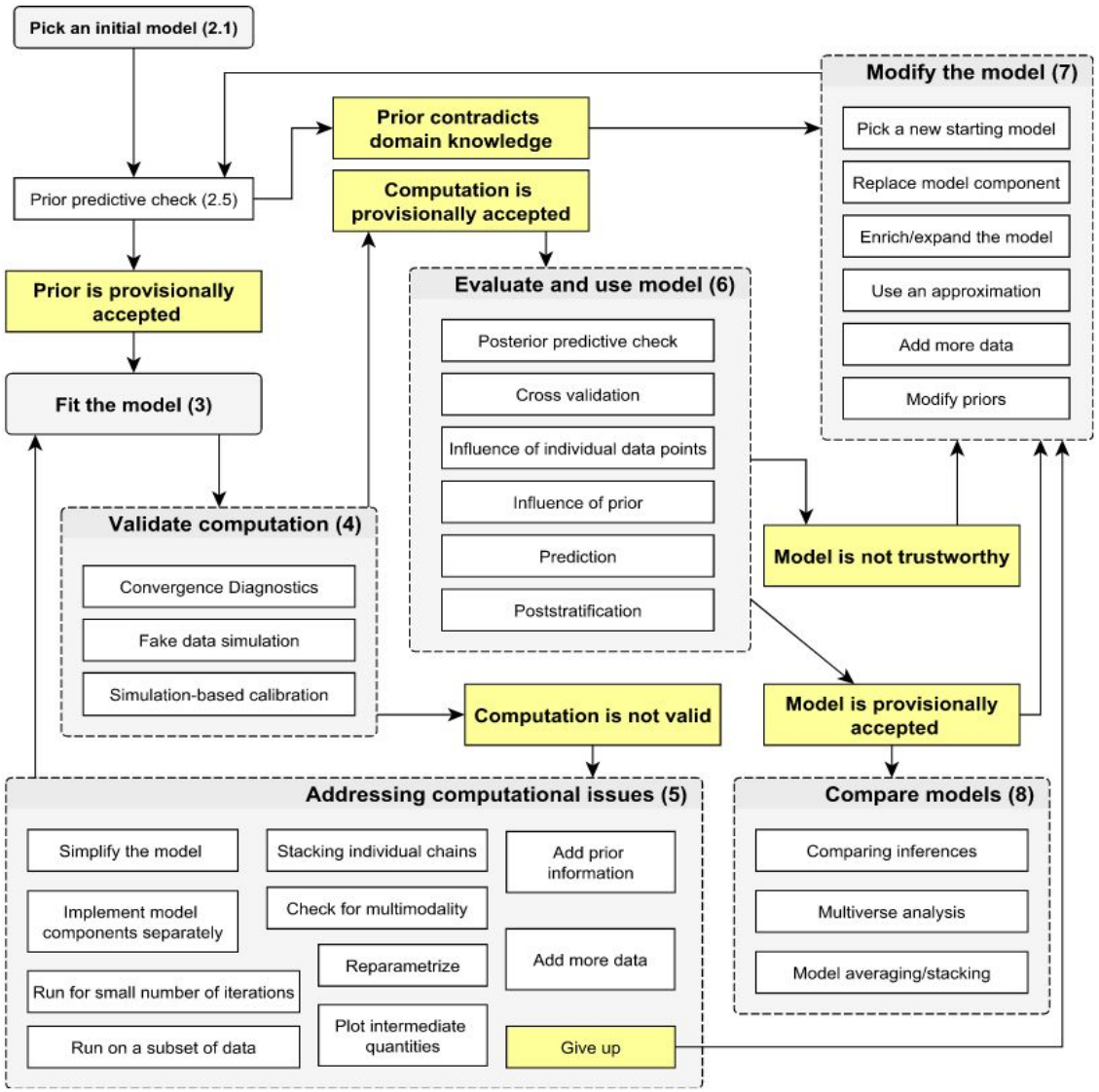


NCX is Built On Basemap

Basemap is a high-resolution Bayesian map of forest carbon in America.

NCX

1. Overview MLOps & Bayesian workflow
2. Tracking experiments with MLFlow
3. Demo



Gelman, Andrew, et al. "Bayesian workflow." *arXiv preprint arXiv:2011.01808* (2020).

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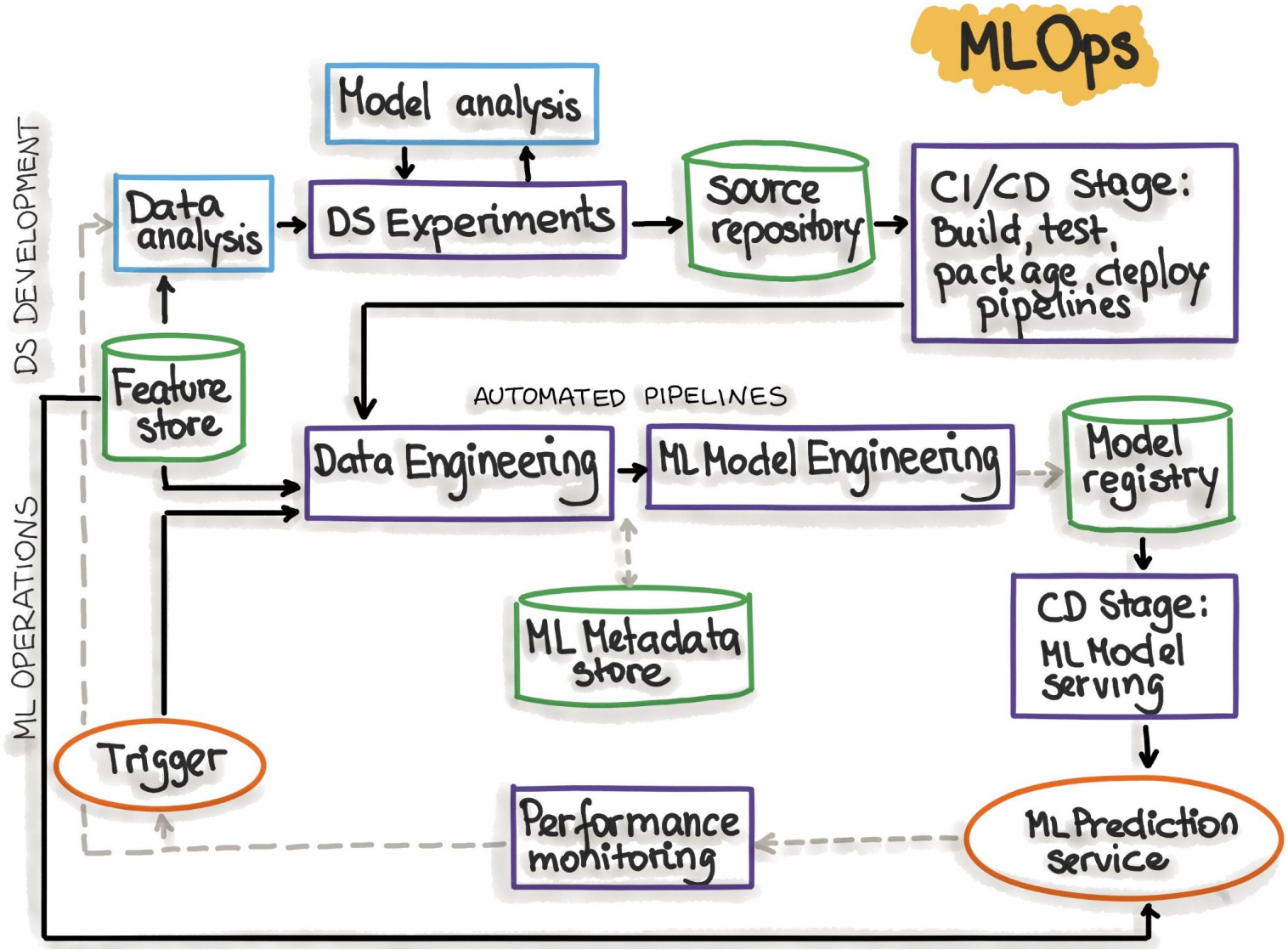

From the excellent ml-ops.org

https://ml-ops.org/content/mlops-principles

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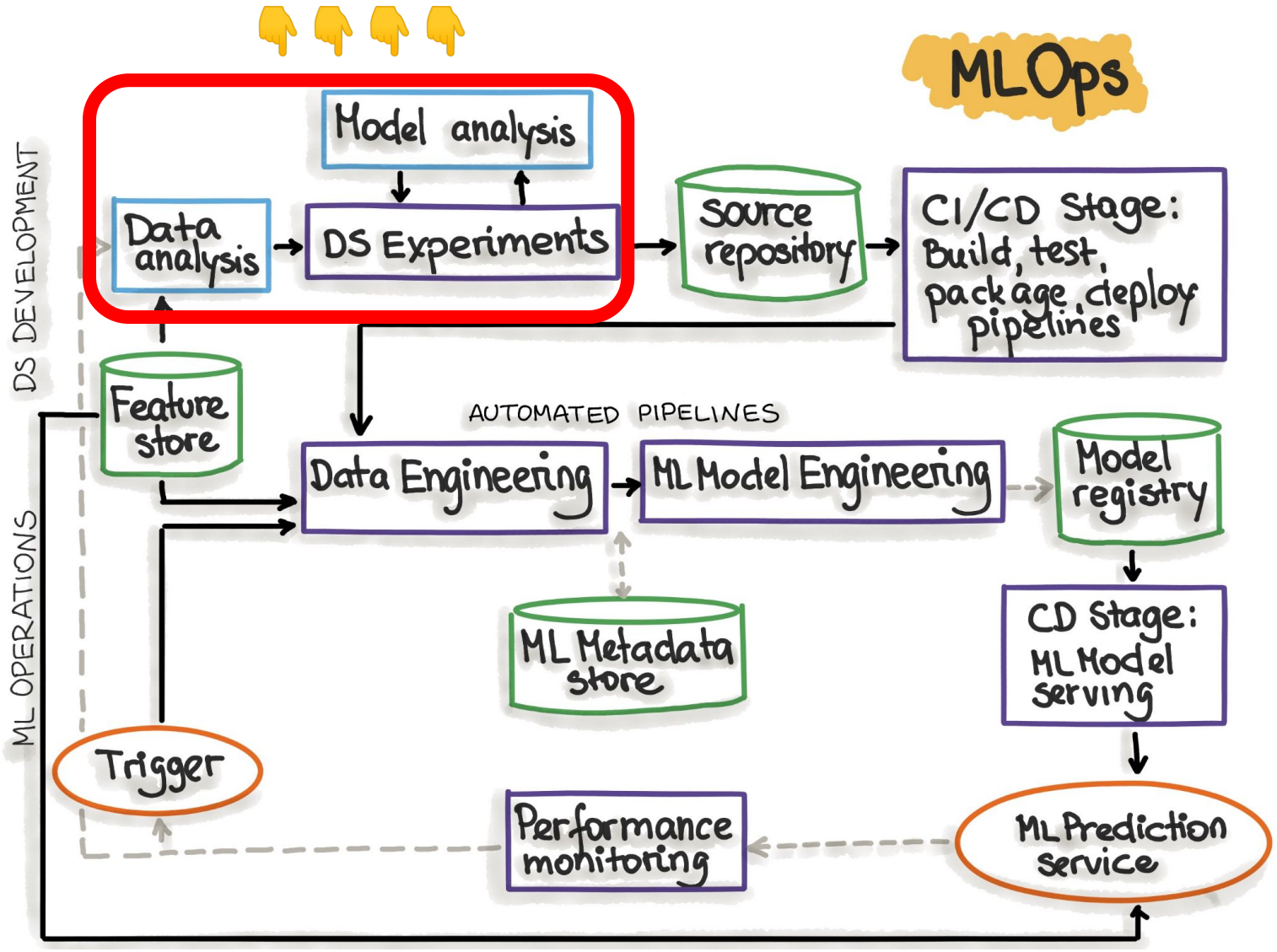
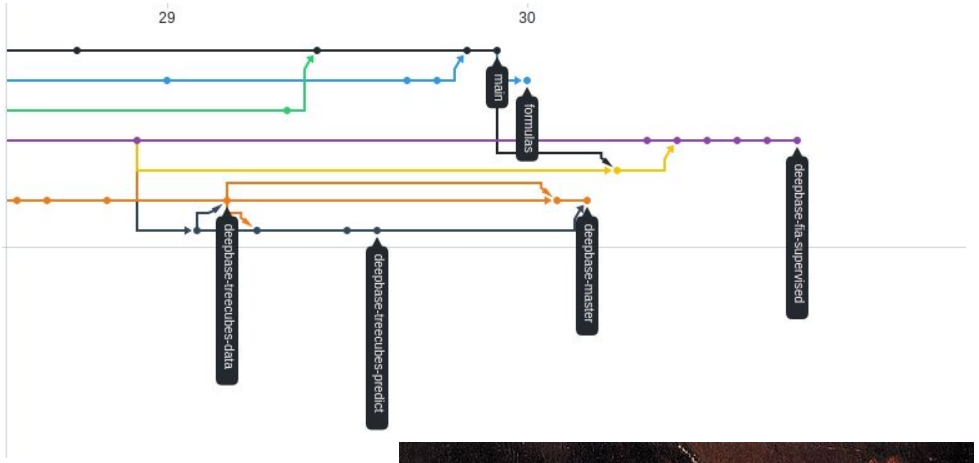

MLOps
DS DEVELOPMENT
Model analysis
Data analysis
DS Experiments
Source repository
CI/CD Stage: Build, test, package, deploy pipelines
Feature store
AUTOMATED PIPELINES
Data Engineering
ML Model Engineering
Model registry
ML OPERATIONS
ML Metadata store
CD Stage: ML Model serving
Trigger
Performance monitoring
ML Prediction service

TRACKING EXPERIMENTS IS HARD!



Name	Size	Modified	Star
experiment1	0 items	09:03	☆
experiment2	0 items	09:03	☆
experiment3	0 items	09:03	☆

“Hell”, Hieronymus Bosch

NCX

Start run

End run

Log metadata

“What’s the experiment”

MCMC sampling

Use Stan

Log metrics

Log elpd, run time, Pareto k, LOO, Rhat, etc.

Log artifacts

Log model object, predictive checks, performance diagnostics, .stan file

mlflow™

NCX

https://github.com/mbjoseph/mlflow-stan

Reach out!

EMAIL

max.joseph@ncx.com

STAN FORUMS

@mbjoseph