Next-Gen Forecasting Pipeline

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Introduction

Forecasting pipeline

Artifacts for further downstream applications

Making predictions from stacked model and using conformal quantile regression for guaranteed confidence intervals

Selecting and tuning of meta-learners on top of tuned base-learners

Leveraging Optuna and Dask

Preparing data from data engineering pipeline for modeling



1 - DATA PREPARATION

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Introduction	Challenges	Solution







4 - PREDICTION

3 - STACKING

2 – HYPERPARAMETER OPTIMISATION

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Conclusion

The Challenge

A next-gen forecasting pipeline must be optimized for parallelization and cloud computing



Introduction	Challenges

The Solution

A unified interface built on the Darts framework

Sim
 Reusable custo processes. Employing tune boosts prediction
 Utilize MAPIE, intervals for any MAPIE's flexibility Employ Confort guaranteed cover

Introduction	Challenges	Solutior



plified stacking and HPO of Meta learner

om functions utilsed on the meta learners and stacking

ed meta learners with automated best selection markedly on accuracy and reduced confidence intervals

Conformalised Quantile Regression

a model-agnostic Python package, to create prediction y regression model, enhancing prediction certainty.

lity reduces CQR complexity.

ormalized Quantile Regression (CQR) for statistically verage, bolstering confidence in business decision-making.

Conclusion

Progress



Custom functions and libraries simplify the prediction workflow, organizing and facilitating the integration of current and future models. This approach streamlines scaling to cloud environments and boosts computational efficiency.



Introducing stacking and CQR develops more accurate and reliable forecasting models





Introduction	Challenges	Solutions



Next Steps

Deployment to AWS Sagemaker (GPU) + Fargate (CPU)

Using Metaflow for parallel sagemaker instances

Conclusion

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