

AutoML: Practical Considerations

Introduction

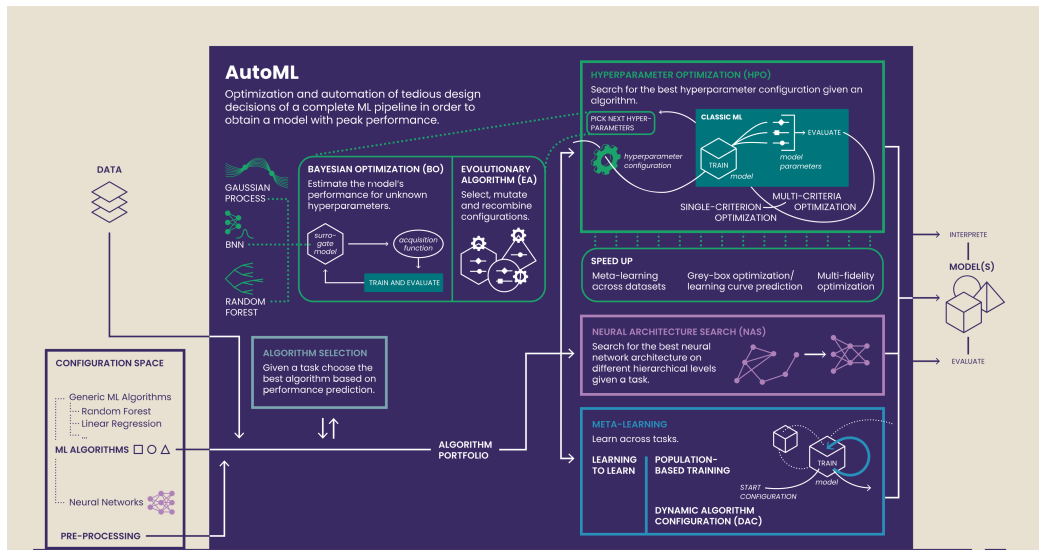
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From HPO to AutoML

So far we covered

- Mechanisms to select ML algorithms for a data set (algorithm selection)
- HPO as black-box optimization
 - ▶ Grid- and random search, EAs, BO
- HPO as a grey box problem
 - ▶ Hyperband, BOHB
- Neural Architecture Search (NAS)
 - ▶ One-Shot approaches, DART
- Dynamic algorithm configuration (learning to learn)
 - ▶ Adapt configuration during training

From HPO to AutoML



What is missing?

What do I need to know as an AutoML user?

- ~~Nothing, because it is automatic.~~
- Understand limitations of AutoML and framework.
- Know how to interpret the results.
- Maybe: Data cleaning and feature extraction.

Ingredients to implement an AutoML?

- HPO algorithm
- ML / Pipeline framework
- Parallelization / Multifidelity
- Process encapsulation and time capping

