AUTOTUNING: A DESIGN OF EXPERIMENTS APPROACH

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AUTOTUNING: OPTIMIZING PROGRAM CONFIGURATIONS

Architectures for High Performance Computing

How to write efficient code for each of these?

Autotuning

The process of automatically finding a configuration of a program that optimizes an objective

Popular Approaches to Autotuning

- Exhaustive
- Meta-Heuristics
- Machine Learning

Our Approach

- Design of Experiments (DoE)
Objective: Increase crop yield

Testing all combinations is inviable
Which combinations to test?
  - DoE provides a selection method
  - Parsimony: decreases experiments

Which is the best combination?
  - DoE provides an analysis method
  - Transparency: use statistical tests

How to use DoE on Autotuning?
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