

Exercise: The Algorithm Advantage: Outperforming Hardware with Smarter Code

Monday 24 March 2025 16:30 (1 hour)

When tackling software performance, it's easy to prioritize hardware optimizations like CPU multithreading or GPU programming. However, a well-chosen algorithm often delivers more significant improvements than any hardware adjustment.

In this lecture, we will begin by demystifying Big-O Notation, a cornerstone for evaluating algorithm efficiency. From there, we will explore algorithms tailored for array operations, starting with a comparative analysis of popular sorting techniques. Their strengths, weaknesses, and use cases will be highlighted to provide practical insights.

Next, we will shift focus to the versatile “two pointers” technique, a powerful paradigm for solving complex problems involving dynamic data structures efficiently.

This session is technology-agnostic, offering valuable takeaways for anyone working with dynamic data structures, regardless of their programming language or technology stack. Whether you are a physicist analyzing data or a developer optimizing code, this lecture will equip you with foundational tools for smarter problem-solving.

Attended school

CSC 2024 (Hamburg)

Number of exercise hours

1

Number of lecture hours

1

Author: GERMINARIO, Andrea

Presenter: GERMINARIO, Andrea