

Approaches to accelerating computations in Python

Wednesday 26 November 2025 15:20 (20 minutes)

The presentation will cover the main approaches to accelerating computations in Python. Special attention is given to the NumPy library, which provides efficient array operations and significantly improves performance. The use of the Numba JIT compiler is also discussed, enabling faster function execution by compiling them into machine code. To increase performance on multicore systems, CPU parallelism is introduced through the Joblib library, which simplifies task parallelization. In addition, the presentation explores the use of GPUs for computation with CuPy and Numba CUDA, allowing substantial reductions in processing time for large datasets. The Jupyter Book tool is also presented as a way to create interactive electronic books based on Jupyter Notebook, combining text, code, visualizations, and computations into a user-friendly format.

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