

Efficient C++ implementation of custom FEM kernel with Eigen

Wednesday, 6 March 2019 14:30 (1 hour)

We will start from examples of problems solved by finite element method - equilibrium magnetic fields, structural deflection calculations. Then we will talk about foundation of FEM method key concepts such as stiffness matrix and impact of high matrix dimensions and sparse characteristic to ways data can be calculated more efficiently.

To implement kernel we will introduce Eigen, a C++ linear algebra library that eliminates intermediate temporary objects by utilizing expression templates technique and generates efficient high-level math code with most of complexity taken from you.

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Track Classification: Lectures and exercises