An Implementation of a Staggered Grid with Comparative Analysis between Covector Fluids and the Basic Method

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Master thesis in Computer Science

This thesis discusses key concepts for the implementation of a fluid simulation on a 2D staggered grid then compares the Covector Fluids method with a more basic method. Moreover, this thesis offers an implementation of the Runge-Kutta 4 method and of the adaptive Runge-Kutta method and discusses their impact on the simulations. To showcase these concepts, two fluid dynamic problems are presented and simulated with those methods : the lid cavity test and the Kármán street vortex.

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