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Making CFD simulation

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For most, Computational Fluid Dynamics (CFD) is associated with colorful visualizations showing a fluid stream traversing a specific space and deforming as it encounters obstacles. However, CFD is much more than that. In essence, it is a Digital Twin - a virtual laboratory for mass and heat transfer processes, often within highly complex 3D geometries. Although CFD originally emerged from numerical atmospheric and weather modelling, it rapidly found applications in advanced heavy industries such as aviation, aerospace, and energy (particularly nuclear power), eventually supporting other fields like medicine. CFD is not tied to a single domain; it is a science in its own right, applied wherever physical experimentation proves technically impossible or simply too expensive. In this presentation, we will discuss the foundations of this technique, the capabilities it offers, the workflow of such an analysis based on a specific example, and whether its results can be trusted.

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