Computational Fluid Dynamics for Engineers
From Panel to Navier-Stokes Methods with Computer Programs
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Abstract
This book introduces a wide range of Computational Fluid Dynamics (CFD) methods used in the aerospace industry to solve engineering problems. Its format is arranged so that students and practicing engineers can understand the fundamental principles used in CFD, with sample computer programs for the solution of model problems.

It begins with the conservation equations of fluid mechanics, including those relevant to turbulence models and continues with descriptions of numerical methods for the solution of parabolic, elliptic and hyperbolic forms. The methods are then applied in detail to solve equations for inviscid incompressible flows, boundary-layer flows, stability and transition calculations, inviscid compressible flows, and incompressible viscous flows and compressible viscous…
Computational fluid dynamics, CFD, has become an indispensable tool for many engineers. This book gives an introduction to CFD simulations of turbulence, mixing, reaction, combustion and multiphase flows. The emphasis on understanding the physics of these flows helps the engineer to select appropriate models to obtain reliable simulations. Besides presenting the equations involved, the basics and limitations of the models are explained and discussed. The book combined with tutorials, project and power-point lecture notes (all available for download) forms a complete course. The reader is given Well, I'm a Computer Engineer and I'm getting my masters in CFD, so I strongly believe that a masters in CFD is good for your career. However, you must have in mind that a masters is not sufficient for you to acquire experience if you're going to work in the industry. I'd recommend you take a look at these webinars: CAE Webinars - Learn CFD, FEA and Thermal Analysis to get some practical grasp in CFD. Overview of CFD Simulation An introductory section outlining the components of a CFD simulation. Includes the description of an example CFD analysis problem; Commands for the Example Problem: A complete step-by-step list of instructions for solving the example problem. Software Components: A description of the concepts and operation involved in the software components: DesignModeler, Meshing, CFX-Pre, CFX-Solver, and CFX-Post; and. Frequently Asked Questions: Suggestions for further study and for solving typical problems. The following font/format conventions are used to indicate the vario