DESCRIPTION

Simulation technology, and computational fluid dynamics (CFD) in particular, is essential in the search for solutions to the modern challenges faced by humanity. Revolutions in CFD over the last decade include the use of unstructured meshes, permitting the modeling of any 3D geometry. New frontiers point to mesh adaptation, allowing not only seamless meshing (for the engineer) but also simulation certification for safer products and risk prediction.

*Mesh Adaptation for Computational Dynamics 1* is the first of two volumes and introduces basic methods such as feature-based and multiscale adaptation for steady models. Also covered is the continuous Riemannian metrics formulation which models the optimally adapted mesh problem into a pure partial differential statement. A number of mesh adaptative methods are defined based on a particular feature of the simulation solution.

This book will be useful to anybody interested in mesh adaptation pertaining to CFD, especially researchers, teachers and students.

ABOUT THE AUTHOR

Alain Dervieux is chief scientist at the Société Lemma and emeritus senior scientist at Inria, Sophia Antipolis. His main research interests are computational fluid dynamics, particularly approximations on unstructured meshes.
Frederic Alauzet is a senior researcher at Inria Saclay and adjunct professor at Mississippi State University. His research focuses on anisotropic mesh adaptation, advanced solvers, mesh generation and moving mesh methods.

Adrien Loseille is a research scientist at Inria Saclay, working in Luminary Cloud. His main domains of interest are unstructured mesh generation and adaptation for computational fluid dynamics.

Bruno Koobus is professor at the University of Montpellier. His main research interests cover computational fluid dynamics, in particular the development of numerical methods on fixed and moving meshes, turbulence modeling and parallel algorithms.

To purchase this product, please visit https://www.wiley.com/en-ca/9781786308313