

# Preface

The scientific computing and computer simulations on modern, powerful computers are tools that can reduce the costs of developing new machines, evaluate different environmental risks, simulate the evolution of different natural or technological phenomena, and conduct virtual experiments that are too dangerous or impossible to perform in laboratories, amongst many other possibilities.

This book is concentrated on the synergy between computer science and numerical analysis. It is written to provide a firm understanding of the described approaches to computer scientists, engineers or other experts who have to solve real problems. The meshless solution approach is described in more detail, with a description of the required algorithms and the methods that are needed for the design of an efficient computer program. Most of the details are demonstrated on solutions of practical problems, from basic to more complicated ones. We believe that this book will be a useful tool for any reader interested in solving complex problems in real computational domains.

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