



Hans Petter Langtangen

A Primer on Scientific Programming with Python

Series: Texts in Computational Science and Engineering

- Example-oriented text with all applications taken from science and engineering
- Aimed at newcomers to programming and Python, but proved to be useful for professionals too
- All examples are accompanied by complete program codes, which can be modified to the reader's needs
- Covers both Matlab-style "simple" programming and object-oriented programming
- Demonstrates how Python can be an alternative to Matlab in scientific computing

The book serves as a first introduction to computer programming of scientific applications, using the high-level Python language. The exposition is example and problem-oriented, where the applications are taken from mathematics, numerical calculus, statistics, physics, biology and finance. The book teaches "Matlab-style" and procedural programming as well as object-oriented programming. High school mathematics is a required background and it is advantageous to study classical and numerical one-variable calculus in parallel with reading this book. Besides learning how to program computers, the reader will also learn how to solve mathematical problems, arising in various branches of science and engineering, with the aid of numerical methods and programming. By blending programming, mathematics and scientific applications, the book lays a solid foundation for practicing computational science. From the reviews: Langtangen ... does an excellent job of introducing programming as a set of skills in problem solving. He guides the reader into thinking properly about producing program logic and data structures for modeling real-world problems using objects and functions and embracing the object-oriented paradigm. ... Summing Up: Highly recommended. F. H. Wild III, Choice, Vol.

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