A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering)

By Hans Petter Langtangen

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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. 47 (8), April 2010

Those of us who have learned scientific programming in Python 'on the streets' could be a little jealous of students who have the opportunity to take a course out of Langtangen's Primer."
John D. Cook, The Mathematical Association of America, September 2011

This book goes through Python in particular, and programming in general, via tasks that scientists will likely perform. It contains valuable information for students new to scientific computing and would be the perfect bridge between an introduction to programming and an advanced course on numerical methods or computational science.
Alex Small, IEEE, CiSE Vol. 14 (2), March?/April 2012

"This fourth edition is a wonderful, inclusive textbook that covers pretty much everything one needs to know to go from zero to fairly sophisticated scientific programming in Python…"
Joan Horvath, Computing Reviews, March 2015

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Editorial Review

Review

"This update to previous editions … continues to serve as an excellent introduction to scientific programming and the Python programming language. … Each chapter has a significant collection of exercises, which reinforce the concepts contained in the chapter. … this is an excellent book for any individual starting to learn scientific programming, and it will serve as a great reference book for those working in the field. Summing Up: Recommended. Lower- and upper-division undergraduates." (D. B. Mason, Choice, Vol. 54 (9), May, 2017)

"The authors have made a very concerted effort to describe Python in a very easy, flowing way with many useful case studies. … I have no hesitation in recommending this book for senior high school students or freshmen in college. One must certainly have access to the Python development environment, and this book will be a worthy companion in the journey to mastering programming concepts." (Naga Narayanaswamy, Computing Reviews, May, 2017)

"All the concepts are illustrated using relatively simple examples that are mostly mathematical. … This book gives a thorough course to learn Python, and yet it is all brought at the level of a first year at the university. The fact that each concept is introduced with an example is essential. … it is a description of how the language is used, which is a very natural approach." (European Mathematical Society, euro-math-soc.eu, August, 2016)

About the Author

Hans Petter Langtangen is a professor of computer science at the University of Oslo. He has formerly been a professor of mechanics and is now the director of a Norwegian Center of Excellence: "Center for Biomedical Computing", at Simula Research Laboratory. Langtangen has published over 100 scientific publications and written several books, including papers and the bestseller TCSE 6 "A Primer on Scientific Programming with Python", now in its 5th edition. He has also developed open source and commercial software systems for computational sciences.

Users Review

From reader reviews:

David Pimentel:

This A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering) book is not ordinary book, you have it then the world is in your hands. The benefit you get by reading this book will be information inside this e-book incredible fresh, you will get information which is getting deeper you read a lot of information you will get. That A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering) without we realize teach the one who examining it become critical in imagining and analyzing. Don't always be worry A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering) can bring once you are and not make your carrier space or

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Charles Siegrist:

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Ian Hall:

A lot of people always spent their free time to vacation or perhaps go to the outside with them family or their friend. Do you know? Many a lot of people spent these people free time just watching TV, or playing video games all day long. In order to try to find a new activity that is look different you can read a new book. It is really fun for you personally. If you enjoy the book that you read you can spent the entire day to reading a book. The book A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering) it is extremely good to read. There are a lot of individuals who recommended this book. These people were enjoying reading this book. When you did not have enough space to develop this book you can buy the particular e-book. You can m0ore quickly to read this book from a smart phone. The price is not to cover but this book provides high quality.

William Henslee:

This A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering) is completely new way for you who has fascination to look for some information mainly because it relief your hunger details. Getting deeper you on it getting knowledge more you know or you who still having little bit of digest in reading this A Primer on Scientific Programming with Python (Texts in Computational Science and Engineering) can be the light food for yourself because the information inside this book is easy to get through anyone. These books acquire itself in the form that is certainly reachable by anyone, sure I mean in the e-book form. People who think that in publication form make them feel sleepy even dizzy this publication is the answer. So you cannot find any in reading a guide especially this one. You can find what you are looking for. It should be here for an individual. So , don't miss the idea! Just read this e-book type for your better life and knowledge.

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