Learning Robotics Using Python
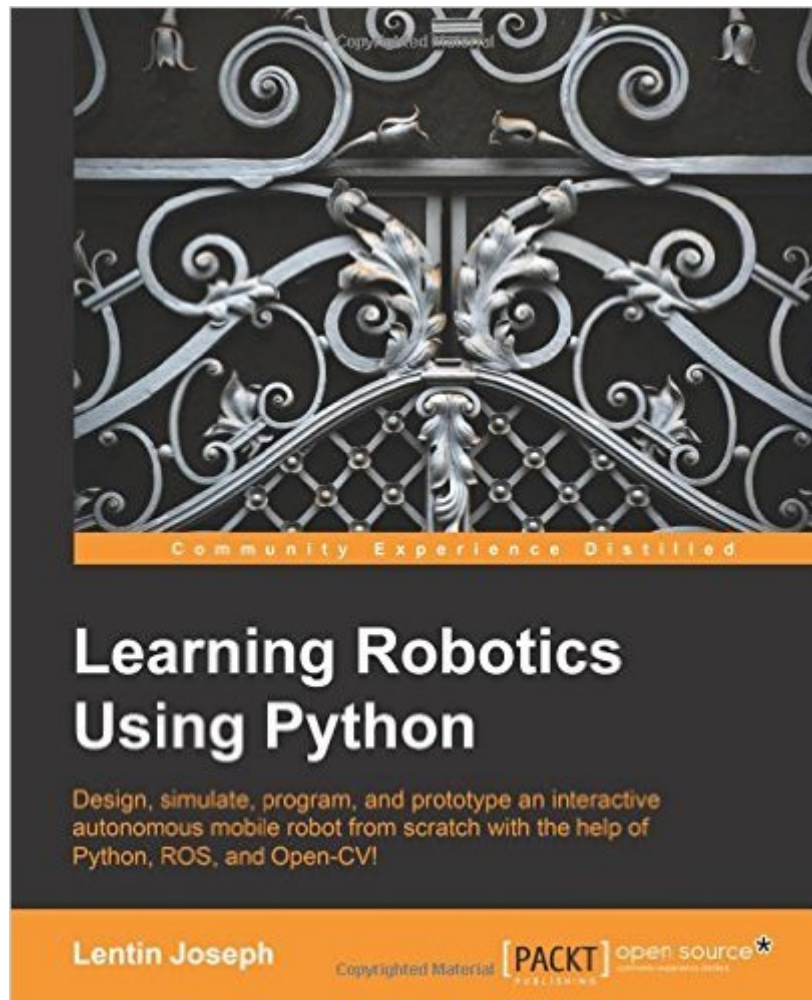

Learning Robotics Using Python

Design, simulate, program, and prototype an interactive autonomous mobile robot from scratch with the help of Python, ROS, and Open-CV!

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[PACKT] open source

Synopsis

Design, simulate, program, and prototype an interactive autonomous mobile robot from scratch with the help of Python, ROS, and Open-CV! About This BookDesign, simulate, build and program an interactive autonomous mobile robotProgram Robot Operating System using PythonGet a grip on the hands-on guide to robotics for learning various robotics concepts and build an advanced robot from scratchWho This Book Is ForIf you are an engineer, a researcher, or a hobbyist, and you are interested in robotics and want to build your own robot, this book is for you. Readers are assumed to be new to robotics but should have experience with Python.What You Will Learn Understand the core concepts and terminologies of robotics Create 2D and 3D drawings of robots using freeware such as LibreCAD and Blender Simulate your robot using ROS and Gazebo Build robot hardware from the requirements Explore a diverse range of actuators and its interfacing Interface various robotic sensors to robots Set up and program OpenCV, OpenNI, and PCL to process 2D/3D visual data Learn speech processing and synthesis using Python Apply artificial intelligence to robots using Python Build a robot control GUI using Qt and Python Calibration and testing of robot In DetailLearning about robotics will become an increasingly essential skill as it becomes a ubiquitous part of life. Even though robotics is a complex subject, several other tools along with Python can help you design a project to create an easy-to-use interface.Learning Robotics Using Python is an essential guide for creating an autonomous mobile robot using popular robotic software frameworks such as ROS using Python. It also discusses various robot software frameworks and how to go about coding the robot using Python and its framework. It concludes with creating a GUI-based application to control the robot using buttons and slides.By the end of this tutorial, you'll have a clear idea of how to integrate and assemble all things into a robot and how to bundle the software package.

Book Information

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Customer Reviews

The title of this book is misleading. Yes, there is python in the book and the examples are written in python, but the book is really about how to take existing technology and build an advanced robot at a price most hobbyists could probably afford. Most of us build a line follower, a light avoider, a robot that bounces off walls and then randomly turns etc, but moving to that next step of building a robot that knows where it is and can find its way back (SLAM algorithm) is something else most builders never get to since it is a hard nut to crack. He gives a blue print for an advanced robot which can be built for well under a $1000 and uses ROS (robot operating system), PCL, a Kinect, IMU, ultrasonic sensor ARM processor etc.He takes all the pieces that are out there and shows you how to integrate them all into an advanced robot. It wasn't what I expected from the book but I was pleasantly surprised since it was exactly what I need to get myself to that advanced robot I really want to build.Warning, that the directions may be out of date (it is predicated on an older version of ROS) and you will need to use the internet and/or other resources to do all of the things he documents. It is still worth every penny

This book differs from the previous books of ROS from PACKT in such a way that it explain to build an autonomous robot from scratch and teach how to apply ROS to it. It will be useful if we are planning to learn ROS and build a robot along with it

I wanted to rate this as 3.5 stars, but seems to restrict the stars to whole numbers. Now to the review.The author obviously knows the subject but I found it difficult to follow all the steps when in particular section. For instance, using Gazebo for robotic simulation, the author shifts between the turtlebot and chefbot without clear and precise directions. There are also missing steps in the process, where I had to figure out how to get to an end goal. This is frustrating and will surely turn-off many readers. It kind of reminded me of some my old engineering undergrad texts where the author left you high and try with a statement like "It is left to the reader to complete the derivation..."The editing also needs improvement. The grammar is stifled and it appears that English is a second language to the author. If not, the author really should get a much better copy editor.I

would consider this book to be appropriate for intermediate or advanced robotic enthusiasts; definitely not for beginners.I am building a turtlebot clone and I did find this book helpful in that endeavor.

This is one of the best books for learning robotics practically. The highlight of this book is that it deals with all the realms of robotics, mechanical CAD design, electronics circuit design, embedded firmware development, high level image and speech processing, autonomous navigation using AI techniques ,and much more. It also gives an intro to using ROS for a beginner. a MUST READ BOOK.

Python: Python Programming Course: Learn the Crash Course to Learning the Basics of Python (Python Programming, Python Programming Course, Python Beginners Course) Deep Learning: Recurrent Neural Networks in Python: LSTM, GRU, and more RNN machine learning architectures in Python and Theano (Machine Learning in Python) Unsupervised Deep Learning in Python: Master Data Science and Machine Learning with Modern Neural Networks written in Python and Theano (Machine Learning in Python) Deep Learning in Python Prerequisites: Master Data Science and Machine Learning with Linear Regression and Logistic Regression in Python (Machine Learning in Python) Convolutional Neural Networks in Python: Master Data Science and Machine Learning with Modern Deep Learning in Python, Theano, and TensorFlow (Machine Learning in Python) Deep Learning in Python: Master Data Science and Machine Learning with Modern Neural Networks written in Python, Theano, and TensorFlow (Machine Learning in Python) Learning Robotics using Python Beginning Python Programming: Learn Python Programming in 7 Days: Treading on Python, Book 1 Python: Python Programming For Beginners - The Comprehensive Guide To Python Programming: Computer Programming, Computer Language, Computer Science Learn Python in One Day and Learn It Well: Python for Beginners with Hands-on Project. The only book you need to start coding in Python immediately Maya Python for Games and Film: A Complete Reference for Maya Python and the Maya Python API Python: Python Programming For Beginners - The Comprehensive Guide To Python Programming: Computer Programming, Computer Language, Computer Science (Machine Language) Deep Learning: Natural Language Processing in Python with GLoVe: From Word2Vec to GLoVe in Python and Theano (Deep Learning and Natural Language Processing) Deep Learning: Natural Language Processing in Python with Word2Vec: Word2Vec and Word Embeddings in Python and Theano (Deep Learning and Natural Language Processing Book 1) FastSLAM: A Scalable Method for the Simultaneous Localization and Mapping

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