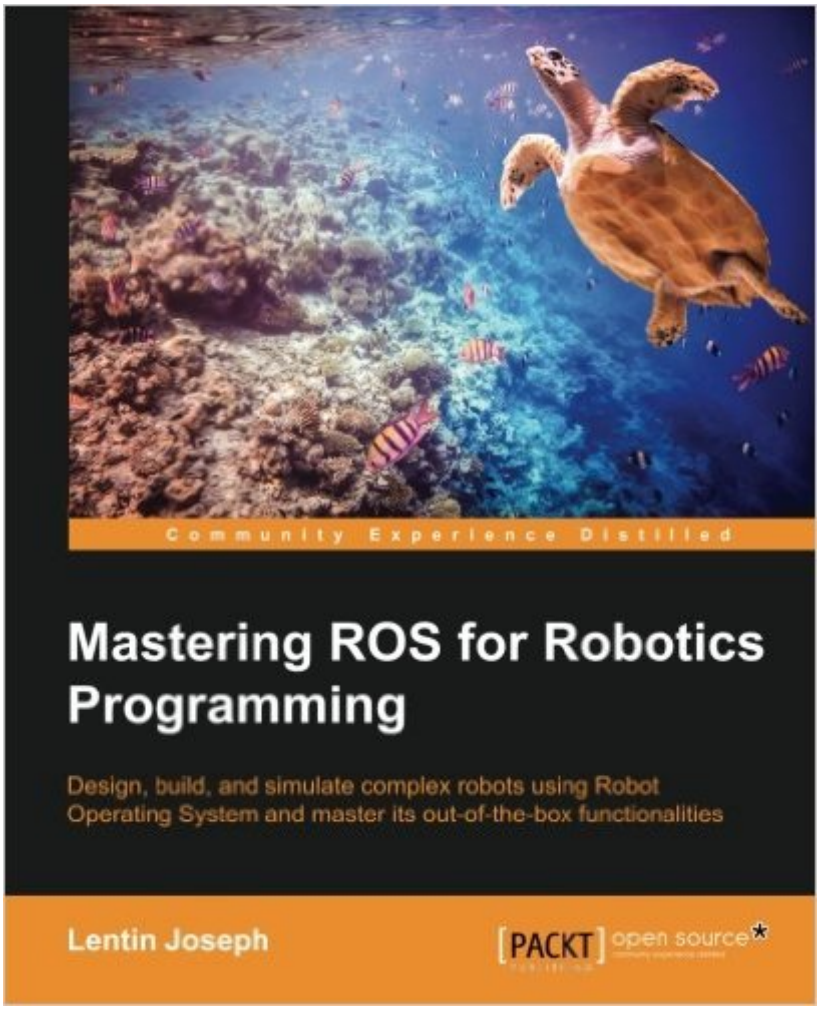
Mastering ROS For Robotics Programming



Synopsis

Design, build and simulate complex robots using Robot Operating System and master its out-of-the-box functionalitiesAbout This BookDevelop complex robotic applications using ROS for interfacing robot manipulators and mobile robots with the help of high end robotic sensorsGain insights into autonomous navigation in mobile robot and motion planning in robot manipulatorsDiscover the best practices and troubleshooting solutions everyone needs when working on ROSWho This Book Is ForIf you are a robotics enthusiast or researcher who wants to learn more about building robot applications using ROS, this book is for you. In order to learn from this book, you should have a basic knowledge of ROS, GNU/Linux, and C++ programming concepts. The book will also be good for programmers who want to explore the advanced features of ROS.What You Will LearnCreate a robot model of a Seven-DOF robotic arm and a differential wheeled mobile robotWork with motion planning of a Seven-DOF arm using MoveIt!Implement autonomous navigation in differential drive robots using SLAM and AMCL packages in ROSDig deep into the ROS Pluginlib, ROS nodelets, and Gazebo pluginsInterface I/O boards such as Arduino, Robot sensors, and High end actuators with ROSSimulation and motion planning of ABB and Universal arm using ROS IndustrialExplore the ROS framework using its latest versionIn DetailThe area of robotics is gaining huge momentum among corporate people, researchers, hobbyists, and students. The major challenge in robotics is its controlling software. The Robot Operating System (ROS) is a modular software platform to develop generic robotic applications.This book discusses the advanced concepts in robotics and how to program using ROS. It starts with deep overview of the ROS framework, which will give you a clear idea of how ROS really works. During the course of the book, you will learn how to build models of complex robots, and simulate and interface the robot using the ROS MoveIt motion planning library and ROS navigation stacks.After discussing robot manipulation and navigation in robots, you will get to grips with the interfacing I/O boards, sensors, and actuators of ROS. One of the essential ingredients of robots are vision sensors, and an entire chapter is dedicated to the vision sensor, its interfacing in ROS, and its programming.You will discuss the hardware interfacing and simulation of complex robot to ROS and ROS Industrial (Package used for interfacing industrial robots).Finally, you will get to know the best practices to follow when programming using ROS.Style and approachThis is a simplified guide to help you learn and master advanced topics in ROS using hands-on examples.

Book Information

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Customer Reviews

Good covers Indigo an Jade, unlike the OSRF book, which was outdated by the time it got to press.

This book contain detail description about R.O.S and its new features !!Really loved it !!

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