1. Record Nr.   UNINA9910157529103321

   Autore   Mahtani Anil

   Titolo   Effective robotics programming with ROS : find out everything you need
                      to know to build powerful robots with the most up-to-date ROS / / Anil
                      Mahtani [and three others]

   Pubbl/distr/stampa Birmingham, England ; ; Mumbai, [India] : , : Packt, , 2016
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   ISBN   1-78646-137-4

   Edizione   [Third edition.]

   Descrizione fisica 1 online resource (469 pages)

   Disciplina   629.89251

   Soggetti   Robots - Programming
                      Robotics

   Lingua di pubblicazione Inglese

   Formato   Materiale a stampa

   Livello bibliografico Monografia

   Note generali   Includes index.

   Sommario/riassunto Find out everything you need to know to build powerful robots with the
                      most up-to-date ROS About This Book This comprehensive, yet easy-
                      to-follow guide will help you find your way through the ROS framework
                      Successfully design and simulate your 3D robot model and use
                      powerful robotics algorithms and tools to program and set up your
                      robots with an unparalleled experience by using the exciting new
                      features from Robot Kinetic Use the latest version of gazebo simulator,
                      OpenCV 3.0, and C++11 standard for your own algorithms Who This
                      Book Is For This book is suitable for an ROS beginner as well as an
                      experienced ROS roboticist or ROS user or developer who is curious to
                      learn ROS Kinetic and its features to make an autonomous Robot. The
                      book is also suitable for those who want to integrate sensors and
                      embedded systems with other software and tools using ROS as a
                      framework. What You Will Learn Understand the concepts of ROS, the
                      command-line tools, visualization GUIs, and how to debug ROS
                      Connect robot sensors and actuators to ROS Obtain and analyze data
                      from cameras and 3D sensors Use Gazebo for robot/sensor and
                      environment simulation Design a robot and see how to make it map the
                      environment, navigate autonomously, and manipulate objects in the

environment using MoveIt! Add vision capabilities to the robot using OpenCV 3.0 Add 3D perception capabilities to the robot using the latest version of PCL In Detail Building and programming a robot can be cumbersome and time-consuming, but not when you have the right collection of tools, libraries, and more importantly expert collaboration. ROS enables collaborative software development and offers an unmatched simulated environment that simplifies the entire robot building process. This book is packed with hands-on examples that will help you program your robot and give you complete solutions using open source ROS libraries and tools. It also shows you how to use virtual machines and Docker containers to simplify the installation of Ubuntu and the ROS framework, so you can start working in an isolated and control environment without changing your regular computer setup. It starts with the installation and basic concepts, then continues with more complex modules available in ROS such as sensors and actuators integration (drivers), navigation and mapping (so you can create an autonomous mobile robot), manipulation, Computer Vision, perception in 3D with PCL, and more. By the end of the book, you'll be able to l...

2.

Record Nr.	UNINA9910743255503321
Autore	Zhao Ling
Titolo	Pneumatic Servo Systems Analysis : Control and Application in Robotic Systems / / by Ling Zhao, Yuanqing Xia, Hongjiu Yang, Jinhui Zhang
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2022
ISBN	981-16-9514-8
	981-16-9515-6
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (325 pages)
Collana	Advances in Industrial Control, , 2193-1577
Disciplina	629.8045
Soggetti	Automatic control
	Robotics
	Automation
	Mechatronics
	Control, Robotics, Automation
	Control and Systems Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Control Methods for Pneumatic Servo Systems -- Platform Introduction -- Linear Feedback Control -- Nonlinear Feedback Control -- Sliding Mode Control -- Platform Introduction -- Back-stepping Control.
Sommario/riassunto	This book focuses on pneumatic servo systems analysis, control and application in robotic systems. The pneumatic servo systems are composed by pneumatic artificial muscles or cylinders, which are two important pneumatic actuators in industrial application. The active disturbance rejection control technique is used effectively to solve strong nonlinearity and uncertain factors for the pneumatic servo systems. Nonlinear feedback control, back-stepping control, finite-time control, sliding mode control and several other control laws are proposed to make the pneumatic servo systems have better control performances. The book establishes a fundamental framework for this topic, while emphasizing the importance of integrated analysis. The book is intended for undergraduate and graduate students who are interested in this field and engineers working on the applications of

pneumatic servo systems. Advances in Industrial Control reports and encourages the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.