

Studies in Computational Intelligence

Volume 625

Series editor

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Anis Koubaa
Editor

Robot Operating System (ROS)

The Complete Reference (Volume 1)

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Polytechnic Institute of Porto
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ISSN 1860-949X ISSN 1860-9503 (electronic)
Studies in Computational Intelligence
ISBN 978-3-319-26052-5 ISBN 978-3-319-26054-9 (eBook)
DOI 10.1007/978-3-319-26054-9

Library of Congress Control Number: 2015955867

Springer Cham Heidelberg New York Dordrecht London
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Printed on acid-free paper

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Preface

ROS is an open-source robotic middleware for the large-scale development of complex robotic systems. Although the research community is quite active in developing applications with ROS and extending its features, the amount of references does not translate the huge amount of work being done.

The objective of the book is to provide the reader with a comprehensive coverage of the Robot Operating Systems (ROS) and the latest related systems, which is currently considered as the main development framework for robotics applications.

There are 27 chapters organized into eight parts. Part I presents the basics and foundations of ROS. In Part II, four chapters deal with navigation, motion and planning. Part III provides four examples of service and experimental robots. Part IV deals with real-world deployment of applications. Part V presents signal-processing tools for perception and sensing. Part VI provides software engineering methodologies to design complex software with ROS. Simulations frameworks are presented in Part VII. Finally, Part VIII presents advanced tools and frameworks for ROS including multi-master extension, network introspection, controllers and cognitive systems.

I believe that this book will be a valuable companion for ROS users and developers to learn more about ROS capabilities and features.

January 2016

Anis Koubaa

Acknowledgements

The editor would like to acknowledge the support of King Abdulaziz City for Science and Technology (KACST) through the funded research project entitled “MyBot: A Personal Assistant Robot Case Study for Elderly People Care” under the grant number 34-75, and also the support of Prince Sultan University.

Acknowledgements to Reviewers

The Editor would like to thank the following reviewers for their great contributions in the review process of the book by providing a quality feedback to authors.

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Contents

Part I ROS Basics and Foundations

MoveIt!: An Introduction	3
Sachin Chitta	
Hands-on Learning of ROS Using Common Hardware	29
Andreas Bihlmaier and Heinz Wörn	
Threaded Applications with the roscpp API	51
Hunter L. Allen	

Part II Navigation, Motion and Planning

Writing Global Path Planners Plugins in ROS: A Tutorial	73
Maram Alajlan and Anis Koubâa	
A Universal Grid Map Library: Implementation and Use Case for Rough Terrain Navigation	99
Péter Fankhauser and Marco Hutter	
ROS Navigation: Concepts and Tutorial	121
Rodrigo Longhi Guimarães, André Schneider de Oliveira, João Alberto Fabro, Thiago Becker and Vinícius Amilgar Brenner	
Localization and Navigation of a Climbing Robot Inside a LPG Spherical Tank Based on Dual-LIDAR Scanning of Weld Beads	161
Ricardo S. da Veiga, Andre Schneider de Oliveira, Lucia Valeria Ramos de Arruda and Flavio Neves Junior	

Part III Service and Experimental Robots

People Detection, Tracking and Visualization Using ROS on a Mobile Service Robot	187
Timm Linder and Kai O. Arras	

A ROS-Based System for an Autonomous Service Robot 215
 Viktor Seib, Raphael Memmesheimer and Dietrich Paulus

Robotnik—Professional Service Robotics Applications with ROS. 253
 Roberto Guzman, Roman Navarro, Marc Beneto and Daniel Carbonell

Standardization of a Heterogeneous Robots Society Based on ROS 289
 Igor Rodriguez, Ekaitz Jauregi, Aitzol Astigarraga, Txelo Ruiz
 and Elena Lazkano

Part IV Real-World Applications Deployment

ROS-Based Cognitive Surgical Robotics 317
 Andreas Bihlmaier, Tim Beyl, Philip Nicolai, Mirko Kunze,
 Julien Mintenbeck, Luzie Schreiter, Thorsten Brennecke,
 Jessica Hutzl, Jörg Raczkowsky and Heinz Wörn

ROS in Space: A Case Study on Robonaut 2 343
 Julia Badger, Dustin Gooding, Kody Ensley, Kimberly Hambuchen
 and Allison Thackston

**ROS in the MONarCH Project: A Case Study in Networked Robot
 Systems 375**
 João Messias, Rodrigo Ventura, Pedro Lima and João Sequeira

Case Study: Hyper-Spectral Mapping and Thermal Analysis 397
 William Morris

Part V Perception and Sensing

**A Distributed Calibration Algorithm for Color and Range Camera
 Networks 413**
 Filippo Basso, Riccardo Levorato, Matteo Munaro
 and Emanuele Menegatti

Acoustic Source Localization for Robotics Networks. 437
 Riccardo Levorato and Enrico Pagello

Part VI Software Engineering with ROS

ROS Web Services: A Tutorial 463
 Fatma Ellouze, Anis Koubâa and Habib Youssef

rapros: A ROS Package for Rapid Prototyping. 491
 Luca Cavanini, Gionata Cimini, Alessandro Freddi, Gianluca Ippoliti
 and Andrea Monteriù

**HyperFlex: A Model Driven Toolchain for Designing and
 Configuring Software Control Systems for Autonomous Robots 509**
 Davide Brugali and Luca Gherardi

Integration and Usage of a ROS-Based Whole Body Control Software Framework 535
Chien-Liang Fok and Luis Sentis

Part VII ROS Simulation Frameworks

Simulation of Closed Kinematic Chains in Realistic Environments Using *Gazebo* 567
Michael Bailey, Krystian Gebis and Miloš Žefran

RotorS—A Modular Gazebo MAV Simulator Framework 595
Fadri Furrer, Michael Burri, Markus Achtelik and Roland Siegwart

Part VIII Advanced Tools for ROS

The ROS Multimaster Extension for Simplified Deployment of Multi-Robot Systems 629
Alexander Tiderko, Frank Hoeller and Timo Röhling

Advanced ROS Network Introspection (ARNI). 651
Andreas Bihlmaier, Matthias Hadlich and Heinz Wörn

Implementation of Real-Time Joint Controllers 671
Walter Fetter Lages

LIDA Bridge—A ROS Interface to the LIDA (Learning Intelligent Distribution Agent) Framework 703
Thiago Becker, André Schneider de Oliveira, João Alberto Fabro and Rodrigo Longhi Guimarães