

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.

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