1. Record Nr. UNINA9910403762603321

Titolo	Advances on Robotic Item Picking : Applications in Warehousing & E-Commerce Fulfillment / / edited by Albert Causo, Joseph Durham, Kris Hauser, Kei Okada, Alberto Rodriguez
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-35679-5
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (viii, 154 pages) : illustrations
Disciplina	670.4272
Soggetti	Electrical engineering Robotics Automation Artificial intelligence Computational intelligence Automatic control Computer simulation Communications Engineering, Networks Robotics and Automation Artificial Intelligence Computational Intelligence Control and Systems Theory Simulation and Modeling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- The challenges of automated item picking: the last mile of logistics for e-commerce -- Robotic Sensing for Item Picking -- Gripper Design and Grasping Strategies -- Machine Learning for Item Identification and Pose Estimation -- Machine Learning for Motion Planning -- Efficient Task Planning Strategies.
Sommario/riassunto	This book is a compilation of advanced research and applications on robotic item picking and warehouse automation for e-commerce applications. The works in this book are based on results that came out

of the Amazon Robotics Challenge from 2015-2017, which focused on fully automated item picking in warehouse setting, a topic that has been assumed too complicated to solve or has been reduced to a more tractable form of bin picking or single-item table top picking. The book's contributions reveal some of the top solutions presented from the 50 participant teams. Each solution works to address the time-constraint, accuracy, complexity, and other difficulties that come with warehouse item picking. The book covers topics such as grasping and gripper design, vision and other forms of sensing, actuation and robot design, motion planning, optimization, machine learning and artificial intelligence, software engineering, and system integration, among others. Through this book, the authors describe how robot systems are built from the ground up to do a specific task, in this case, item picking in a warehouse setting. The compiled works come from the best robotics research institutions and companies globally. Presents an inside look at the various solutions for automated warehouse item picking based on the Amazon Robotics Challenge (ARC) Contains details of the challenges and solutions involved in automating item picking Provides details and insights on the solutions of the winning teams Includes chapters written by scientists and engineers at the forefront of robotics research.