



A. Causo, J. Durham, K. Hauser, K. Okada, A. Rodriguez (Eds.)

Advances on Robotic Item Picking

Applications in Warehousing & E-Commerce Fulfillment

- 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

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 a 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.

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