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Nota di contenuto	Introduction -- Experimental Platform Configuration -- Experimental Platform Introduction -- Experimental Procedure -- Multicopter Propulsion System Design -- Multicoper Modeling -- Multicopter Sensor Calibration -- State Estimation and Filter Design -- Multicopter Attitude Controller Design -- Multicopter Set-point Controller Design -- Decision-making Controller Design for Semi-autonomous Multicopters -- Multicopter Failsafe Logic Design -- Appendix A -- Appendix B.
Sommario/riassunto	As the sister book to “Introduction to Multicopter Design and Control,” published by Springer in 2017, this book focuses on using a practical process to help readers to deepen their understanding of multicopter design and control. Novel tools with tutorials on multicopters are presented, which can help readers move from theory to practice. Experiments presented in this book employ: (1) The most widely-used flight platform – multicopters – as a flight platform; (2) The most widely-used flight pilot hardware – Pixhawk – as a control platform;

and (3) One of the most widely-used programming languages in the field of control engi-neering – MATLAB + Simulink – as a programming language. Based on the current advanced development concept Model-Based Design (MBD)process, the three aspects mentioned above are closely linked. Each experiment is implemented in MATLAB and Simulink, and the numerical simula-tion test is carried out on a built simulation platform. Readers can upload the controller to the Pixhawk autopilot using automatic code generation technology and form a closed loop with a given real-time simulator for Hardware-In-the-Loop (HIL) testing. After that, the actual flight with the Pixhawk autopilot can be performed. This is by far the most complete and clear guide to modern drone fundamentals I've seen.It covers every element of these advanced aerial robots and walks through examples and tutorials based on the industry's leading open-source software and tools. Read this book, and you'll be well prepared to work at the leading edge of this exciting new industry. Chris Anderson, CEO 3DR and Chairman, the Linux Foundation'sDronecode Project The development of a multicopter and its applications is very challenging in the robotics area due to the multidomain knowledge involved. This book systematically addresses the design, simulation and implementation of multicopters with the industrial leading workflow – Model-Based Design, commonly used in the automotive and aero-defense industries. With this book, researchers and engineers can seamlessly apply the concepts, workflows, and tools in other engineering areas, especially robot design and robotics ap-plication development. Dr. Yanliang Zhang, Founder of Weston Robot, EX-product Manager of Robotics System Toolbox at the MathWorks.