

1. Record Nr.	UNINA9910299922803321
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Titolo	Aerial Manipulation // by Matko Orsag, Christopher Korpela, Paul Oh, Stjepan Bogdan
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-61022-8
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XV, 235 p. 148 illus., 98 illus. in color.)
Collana	Advances in Industrial Control, , 1430-9491
Disciplina	623.7469
Soggetti	Automatic control Robotics Automation Aerospace engineering Astronautics Control and Systems Theory Robotics and Automation Aerospace Technology and Astronautics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Coordinate Systems and Transformations -- Physics of UAV Flight -- Manipulator Kinematics -- Aerial Manipulator Dynamics -- Sensors and Control -- Mission Planning and Control.- Multirotor Aerodynamics and Actuation.- Aerial Manipulator Kinematics -- Aerial Manipulator Dynamics.- Sensors and Control.- Mission Planning and Control.
Sommario/riassunto	This text is a thorough treatment of the rapidly growing area of aerial manipulation. It details all the design steps required for the modeling and control of unmanned aerial vehicles (UAV) equipped with robotic manipulators. Starting with the physical basics of rigid-body kinematics, the book gives an in-depth presentation of local and global coordinates, together with the representation of orientation and motion in fixed- and moving-coordinate systems. Coverage of the kinematics and dynamics of unmanned aerial vehicles is developed in a succession

of popular UAV configurations for multirotor systems. Such an arrangement, supported by frequent examples and end-of-chapter exercises, leads the reader from simple to more complex UAV configurations. Propulsion-system aerodynamics, essential in UAV design, is analyzed through blade-element and momentum theories, analysis which is followed by a description of drag and ground-aerodynamic effects. The central part of the book is dedicated to aerial-manipulator kinematics, dynamics, and control. Based on foundations laid in the opening chapters, this portion of the book is a structured presentation of Newton–Euler dynamic modeling that results in forward and backward equations in both fixed- and moving-coordinate systems. The Lagrange–Euler approach is applied to expand the model further, providing formalisms to model the variable moment of inertia later used to analyze the dynamics of aerial manipulators in contact with the environment. Using knowledge from sensor data, insights are presented into the ways in which linear, robust, and adaptive control techniques can be applied in aerial manipulation so as to tackle the real-world problems faced by scholars and engineers in the design and implementation of aerial robotics systems. The book is completed by path and trajectory planning with vision-based examples for tracking and manipulation. .

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