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Autore	Copot Cosmin
Titolo	Image-Based and Fractional-Order Control for Mechatronic Systems : Theory and Applications with MATLAB® // by Cosmin Copot, Clara Mihaela Ionescu, Cristina I. Muresan
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Nota di contenuto	Chapter 1. Introduction -- Part I: Visual Servoing Systems and Fractional Order Control -- Chapter 2. Visual Servoing Systems -- Chapter 3. Image Feature Extraction and Evaluation -- Chapter 4. Fractional Order Control: General Aspects -- Chapter 5. Fractional Order Control for TITO Systems -- Part II: Applications of Visual Servoing and Fractional Order Control -- Chapter 6. Simulators for Image Based Control Architecture -- Chapter 7. Application of Fractional Order Control on Real-Time Targets -- Chapter 8. Fractional Order Controller for Visual Servoing Systems -- Chapter 9. Sliding Mode Control for a Class of Robotic Arms -- Chapter 10. Conclusions -- Appendix -- References.
Sommario/riassunto	This book unites two fast-developing forms of control—vision-based control and fractional-order control—and applies them in mechatronic systems. Image-Based and Fractional-Order Control for Mechatronic Systems is presented in two parts covering the theory and applications of the subject matter. The theoretical material presents the concepts of visual servoing and image-based feature extraction for feedback loops

and fractional-order control. It discusses a range of systems from the classic monocular camera to new RGB-D sensors. The applications part of the book first discusses practical issues with the implementation of fractional-order control, comparing them with more traditional integer-order PID systems. The authors then introduce real-life examples such as a manipulator robot and a Stewart platform and results generated from such systems. MATLAB® functions and source codes are included wherever relevant to help readers develop simulations based on the theoretical ideas and practical examples in the text. Suggestions for the use of other pertinent open-source software are also indicated with the places where such may be obtained. With its combination of theoretical ideas and practical examples, Image-Based and Fractional-Order Control for Mechatronic Systems will be of interest to academic researchers looking to develop the fields of vision-based and fractional-order control and to engineers who are looking for developments that will help them provide closer control of their plants than can be achieved with integer-order PID. Advances in Industrial Control reports and encourages the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.
