

1. Record Nr.	UNINA9910299212203321
Titolo	Integrated Imaging and Vision Techniques for Industrial Inspection : Advances and Applications / / edited by Zheng Liu, Hiroyuki Ukida, Pradeep Ramuhalli, Kurt Niel
Pubbl/distr/stampa	London : , : Springer London : , : Imprint : Springer, , 2015
ISBN	1-4471-6741-4
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (543 p.)
Collana	Advances in Computer Vision and Pattern Recognition, , 2191-6586
Disciplina	658.568
Soggetti	Optical data processing Pattern perception Image Processing and Computer Vision Pattern Recognition
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Industrial Inspection with Open Eyes -- Part I: Advances in Technology -- Infrared Vision -- Inspection Methods for Metal Surfaces -- FlexWarp, a Fast and Flexible Method for High-Precision Image Registration -- How Optical CMMs and 3D Scanning will Revolutionize the 3D Metrology World -- Fast Three-Dimensional Shape Inspection Using a Multi-Sided Mirror -- Efficient Completeness Inspection Using Real-Time 3D Color Reconstruction with a Dual-Laser Triangulation System -- X-Ray Computed Tomography for Non-Destructive Testing and Materials Characterization -- Defect Inspection for Curved Surfaces with a Highly Specular Reflection -- Part II: Applications and System Integration for Vision-Based Inspection -- Robotic Inspection Systems -- Machine Vision Techniques for Condition Assessment of Civil Infrastructure -- Smart Check 3D -- Ultrasonic Evaluation and Imaging -- Non-Destructive Visualization Using Electromagnetic Waves for Real and Practical Sensing Technology for Robotics -- Magneto-Optic Imaging and its Applications.
Sommario/riassunto	This pioneering text/reference presents a detailed focus on the use of machine vision techniques in industrial inspection applications. An internationally renowned selection of experts provide insights on a

range of inspection tasks, drawn from their cutting-edge work in academia and industry, covering practical issues of vision system integration for real-world applications. Topics and features: Presents a comprehensive review of state-of-the-art hardware and software tools for machine vision, and the evolution of algorithms for industrial inspection Includes in-depth descriptions of advanced inspection methodologies and machine vision technologies for specific needs Discusses the latest developments and future trends in imaging and vision techniques for industrial inspection tasks Provides a focus on imaging and vision system integration, implementation, and optimization Describes the pitfalls and barriers to developing successful inspection systems for smooth and efficient manufacturing process Bridging the gap between theoretical knowledge and engineering practice, this indispensable book will appeal to graduate students interested in imaging, machine vision, and industrial inspection. The work also serves as an excellent reference for researchers seeking to develop innovative solutions to tackle practical challenges, and for professional engineers who will benefit from the coverage of applications at both system and component level.
