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Record Nr.	UNINA9910427688003321
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Titolo	Active lighting and its application for computer vision : 40 years of history of active lighting techniques / / Katsushi Ikeuchi [and six others]
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2020] ©2020
ISBN	3-030-56577-7
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XIV, 308 p. 251 illus., 167 illus. in color.)
Collana	Advances in Computer Vision and Pattern Recognition
Disciplina	006.37
Soggetti	Computer vision Optical data processing Robotics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	Computer vision entails both passive and active illumination techniques. Whereas passive techniques observe the scene statically and analyse it as is, by contrast active techniques give the scene some actions and try to facilitate the analysis. In particular, active illumination techniques project specific light, for which the characteristics are known beforehand, to a target scene to enable stable and accurate analysis of the scene. Notably, traditional passive techniques have a fundamental limitation: The external world surrounding us is three-dimensional; the image projected on a retina or an imaging device is two-dimensional (That is, reduction of one dimension has occurred). Active illumination techniques compensate for the dimensional reduction by actively controlling the illumination. The demand for reliable vision sensors is rapidly increasing in many application areas, such as robotics and medical image analysis. This book explains this new endeavour to explore the augmentation of reduced dimensions in computer vision. This pivotal volume comprehensively examines basic optics concepts, available active-lighting techniques, and various application domains. Primarily aimed

at advanced undergraduates and beginning graduates, the book also will serve as a useful guidebook for engineers from fields both in and beyond computer vision. Additionally, the book is suitable as course material for professional technical seminars. The authors are highly experienced researchers and professors from esteemed universities, labs, institutes, and corporations in Japan. Dr. Katsushi Ikeuchi is a Principal Researcher at Microsoft Research Asia, Beijing, China, and an Emeritus Professor of the University of Tokyo. Dr. Hiroshi Kawasaki is a Professor in the Department of Advanced Information Technology and Head of the Computer Vision and Graphics Laboratory at Kyushu University, Fukuoka. Dr. Yasuhiro Mukaigawa is a Professor in the Division of Information Science and Head of the Optical Media Interference Laboratory at Nara Institute of Science and Technology, Ikoma. Dr. Ryusuke Sagawa is a Senior Researcher in the Interactive Robotics Research Group of the Intelligent Systems Research Institute at the National Institute of Advanced Industrial Science and Technology, Tsukuba. Dr. Ryo Furukawa and Dr. Daisuke Miyazaki are Associate Professors in the Image Media Engineering and Computer Graphics Laboratory of the Department of Intelligent Systems at Hiroshima City University. Dr. Yasuyuki Matsushita is a Professor in the Information Science and Technology Department at Osaka University, where he leads a laboratory focusing on computer vision, machine learning, data mining, and information and knowledge processing.