



Machine Vision Algorithms and Applications

By Carsten Steger, Markus Ulrich, Christian Wiedemann

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This first up-to-date textbook for machine vision software provides all the details on the theory and practical use of the relevant algorithms.

The first part covers image acquisition, including illumination, lenses, cameras, frame grabbers, and bus systems, while the second deals with the algorithms themselves. This includes data structures, image enhancement and transformations, segmentation, feature extraction, morphology, template matching, stereo reconstruction, and camera calibration. The final part concentrates on applications, and features real-world examples, example code with HALCON, and further exercises.

Uniting the latest research results with an industrial approach, this textbook is ideal for students of electrical engineering, physics and informatics, electrical and mechanical engineers, as well as those working in the sensor, automation and optical industries.

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Editorial Review

Review

"This is a very interesting, complete, and up-to-date book about various aspects of solving real-world machine vision problems. The opportunity to use and test the machine vision software HALCOM is also an important aspect of this book, allowing the reader to practice and develop machine vision solutions by using a very professional and complete software package." (*Computing Reviews*, January 21, 2009)

"This textbook for machine vision software not only covers the relevant algorithms in theory, but also figures out their practical use." (*openPR.com*, September 2008)

From the Back Cover

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About the Author

Carsten Steger studied computer science at Technische Universität München (TUM) and received his PhD from TUM in 1998. In 1996, he co-founded the company MVTec, where he heads the Research and Development department.

He has authored and co-authored more than 60 scientific publications in the field of machine vision. Carsten Steger is also a guest lecturer at the Technische Universität München, where he teaches machine vision.

Markus Ulrich studied Geodesy and Remote Sensing at Technische Universität München (TUM) and received his PhD from TUM in 2003. Since 2003, he is a software engineer at the Research and Development department of MVTec. He has authored and co-authored scientific publications in the fields of photogrammetry and machine vision.

Markus Ulrich is also a guest lecturer at the Technische Universität München, where he teaches close-range photogrammetry.

Christian Wiedemann studied Geodesy and Remote Sensing at

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