

# Machine Vision Algorithms in Java



Techniques and Implementation

Paul F. Whelan and Derek Molloy

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## **Machine Vision Algorithms In Java Techniques And Implementation:**

**Machine Vision Algorithms in Java** Paul F. Whelan, Derek Molloy, 2012-12-06 Machine Vision Algorithms in Java provides a comprehensive introduction to the algorithms and techniques associated with machine vision systems The Java programming language is also introduced with particular reference to its imaging capabilities The book contains explanations of key machine vision techniques and algorithms along with the associated Java source code Special features include A complete self contained treatment of the topics and techniques essential to the understanding and implementation of machine vision An introduction to object oriented programming and to the Java programming language with particular reference to its imaging capabilities Java source code for a wide range of practical image processing and analysis functions Readers will be given the opportunity to download a fully functional Java based visual programming environment for machine vision available via the WWW This contains over 200 image processing manipulation and analysis functions and will enable users to implement many of the ideas covered in this book Details relating to the design of a Java based visual programming environment for machine vision An introduction to the Java 2D imaging and Java Advanced Imaging JAI APIs A wide range of illustrative examples Practical treatment of the subject matter This book is aimed at senior undergraduate and postgraduate students in engineering and computer science as well as practitioners in machine vision who may wish to update or expand their knowledge of the subject The techniques and algorithms of machine vision are expounded in a way that will be understood not only by specialists but also by those who are less familiar with the topic

**Machine Vision for the Inspection of Natural Products** Mark Graves, Bruce Batchelor, 2006-05-18 Machine vision technology has revolutionised the process of automated inspection in manufacturing The specialist techniques required for inspection of natural products such as food leather textiles and stone is still a challenging area of research Topological variations make image processing algorithm development system integration and mechanical handling issues much more complex The practical issues of making machine vision systems operate robustly in often hostile environments together with the latest technological advancements are reviewed in this volume Features Case studies based on real world problems to demonstrate the practical application of machine vision systems In depth description of system components including image processing illumination real time hardware mechanical handling sensing and on line testing Systems level integration of constituent technologies for bespoke applications across a variety of industries A diverse range of example applications that a system may be required to handle from live fish to ceramic tiles Machine Vision for the Inspection of Natural Products will be a valuable resource for researchers developing innovative machine vision systems in collaboration with food technology textile and agriculture sectors It will also appeal to practising engineers and managers in industries where the application of machine vision can enhance product safety and process efficiency

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**Feature Extraction and Image Processing** Mark Nixon,2013-10-22 Focusing on feature extraction while also covering issues and techniques such as image acquisition sampling theory point operations and low level feature extraction the authors have a clear and coherent approach that will appeal to a wide range of students and professionals Ideal module text for courses in artificial intelligence image processing and computer vision Essential reading for engineers and academics working in this cutting edge field Supported by free software on a companion website

*Computational Science and Its Applications* ,2004

[Feature Extraction & Image Processing](#) Mark Nixon,2008-01-08 Whilst other books cover a broad range of topics Feature Extraction and Image Processing takes one of the prime targets of applied computer vision feature extraction and uses it to provide an essential guide to the implementation of image processing and computer vision techniques Acting as both a source of reference and a student text the book explains techniques and fundamentals in a clear and concise manner and helps readers to develop working techniques with usable code provided throughout The new

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operations is compared with the performance of equivalent C C programs  
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in numerical analysis newton s method also known as the newton raphson method named after isaac newton and joseph raphson is a root finding algorithm which produces successively better approximations to the roots or zeroes of a real valued function the most basic version starts with a single variable function  $f$  defined for a real variable  $x$  the function s derivative  $f'$

and an initial guess  $x_0$  for a root of  $f$  if the function satisfies sufficient assumptions and the initial guess is close

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