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Advances in MACHINE VISION

Strategies and Applications

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Preface

This book is about new ideas for extracting information from sensor data. Each paper was invited, and reviewed by other experts in the field, *and* by the editors. We have achieved an interesting cross-section of machine vision. There are 20 papers presented from eight countries. The desire to force the book to contain only the ideas in our fields of interest has been resisted, and we have been satisfied to edit for technical and English correctness.

The text is organized around five section titles which will help direct those who are browsing. It may be interesting to note, however, that interesting theoretical developments can be found in the section called ‘Applications,’ and interesting applications are apparent to the avid reader, even in the most theoretical papers.

Typesetting of this book was done using \LaTeX . We thank Gerhard Roth for helping us get started with this. The communication between the authors and the editors was done by e-mail, including the submission of the final manuscript. It is still amazing that world wide communication can occur with such ease.

Colin would like to specifically thank the authors for their efficiency, and friendliness during the preparation of this book. It was a pleasure to be working with you.

– *Colin Archibald and Emil Petriu*

The Cover

The Discrete Fourier Transform (DFT) may be formulated as a multiplication of a matrix and the time-series vector. The corresponding complex-valued matrix of numbers appears on the cover as a colour-coded image, where the crosshairs denote the time and frequency axes. Appropriate 2-D windows into this image lead to variants of the Short Time Fourier Transform (STFT) and the wavelet transform. Coordinate transformations (rotations, shears, etc.) applied to the image further extend these well known time-frequency methods into new time-frequency “perspectives.” (See *Wavelets and “Chirplets”: Time-Frequency “Perspectives” with Applications* on page 99.)

– *Steve Mann*

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