

PROCEEDINGS

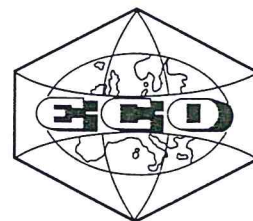


Image Processing II

Peter J. S. Hutzler
André J. Oosterlinck
Chairs/Editors

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ECO1
IMAGE PROCESSING II

Volume 1027

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INTRODUCTION

Including a conference on Image Processing within ECO1 required some considerations of scope and design of the conference. On one hand, this conference should not be in competition with special conferences on signal and pattern recognition running just before or after the Hamburg Congress. On the other hand, from its position within ECO arises a special task. It should present a platform for information exchange between those specialists who design new hardware and software tools for image processing and those scientists and engineers who apply or intend to apply image processing as a tool in optical science and engineering. These requirements were intended to be met by 2 tutorials and over 30 papers presented in 6 sessions.

The initial session on Image Sensing was introduced by a review on various types of optoelectronic image sensor systems, given by Michael Kriss. He outlined the typical features of systems based on electron beam tubes and various discrete solid state sensors, and, in addition, critically compared their imaging power with that of classical film material. Further contributions treated new sensor types, an approach to pyroelectric matrix sensors, quantitative testing of sensors, and an application in imaging spectroscopy.

The session on Image Processing Systems began with Jürgen Sädler lecturing on "Parallel processing of attributes of digital lines." This and further contributions showed that parallelizing of image processing algorithms is an actual challenge to speed up algorithms for on-line processing.

There were papers related to computer graphics and visualization. They treated problems of halftone processing, quantitative color representation, etc.

The group of sessions on image analysis was introduced by a fundamental lecture on "Principles of motion analysis in real time," presented by Erik Granum. He gave an extensive survey on various approaches developed by different groups. Within the three sessions on image analysis and its applications, a wide range of algorithms and application tasks was presented, ranging from a mathematical lecture on the Karhunen-Loeve algorithm to the dedicated task of image improvement on space mission data. These sessions show a definite trend in image analysis toward two directions: (1) optimized algorithms are developed for distinct image analysis problems, and (2) a "higher level" approach to image analysis develops more generalized systems based on knowledge base and decision rules for automated analysis. It is very important that these two branches do not diverge and lose contact with each other.

In summary, this conference on image processing initialized a platform for information exchange and demonstrated that image processing is still a central part of modern optics.

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