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Theory and Algorithms

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- Aerial and space triangulation with surface and line information
- Position determination of airborne line and range sensors by kinematic GPS
- Attitude determination of airborne line and range sensors
- Total system calibration
- Combined/generalized block adjustment

WG III/2

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- Perceptual grouping
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- Image transformation
- Image and surface segmentation

WG III/3

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- Knowledge encapsulation, representation and manipulation
- Hypotheses generation and verification
- Data structures, interaction with GIS
- Computational modelling

WG III/4

Tutorials on Theory and Algorithms

Chairman: Fabio Crosilla (Italy)
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- Development of GPS/INS and its integration into photogrammetry
- Review of low and medium level photogrammetric image analysis and processing for object reconstruction
- Basic knowledge in image understanding
- Hardware and software aspects of digital photogrammetric systems
- Basic knowledge of geo-information technology

IC WG III/IV Conceptual Aspects of GIS
Chairman: Martien Molenaar (The Netherlands)
Co-Chairman: Ryosuke Shibasaki (Japan)

- Object/space modeling for GIS
- Integration of data from multi-sources
- Query spaces and analysis of geo-objects and geo-space
- Linking aggregation levels
- Handling uncertainty

IC WG II/III Digital Photogrammetric Systems
Chairman: Ian Dowman (United Kingdom)
Co-Chairman: David M. McKeown (USA)

- Digital photogrammetric workstation design
- Visualization techniques
- Multimedia techniques
- Automated cartographic compilation systems
- Integration of photogrammetric techniques and models into computer vision systems
- Integration with input and visualization devices
- Human-computer interface issues
- Integration with spatial data bases

IC WG V/III Image Sequence Analysis
Chairman: Emmanuel Baltsavias (Switzerland)
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- Sensors
- Construction and representation of local maps
- Fusion of local into global maps
- Navigation
- Motion planning
- Strategy aspects
- Image sequence analysis systems
- Fusion of multi-sensory information
- Error modelling and propagation of uncertainty
- Use of a priori knowledge from spatial information systems

PREFACE

Spatial information plays an increasingly important role for documentation and planning purposes of all kinds. Two essential disciplines for the acquisition and updating of such information are photogrammetry and remote sensing, and computer vision. The information management, analysis, and presentation is carried out to a large extent with the help of geographic information systems.

These issues are addressed in the working groups of the ISPRS Commission III:

- **Integrated Sensor Orientation**
- **Geometric-Radiometric Models and Object Reconstruction**
- **Semantic Models and Object Recognition**
- **Conceptual Aspects of GIS**
- **Digital Photogrammetric Systems**
- **Image Sequence Analysis**

A total of 232 extended abstracts has been submitted to the Commission III program committee. This large number indicates the high interest in the scientific and technical issues addressed by ISPRS Commission III. The papers have undergone a rigorous review process by the technical program committee on the basis of the extended abstracts. The accepted papers not only summarize the state-of-the-art in various disciplines, but also pave the way for future research and development activities in photogrammetry and computer vision.

We hope that all congress participants will leave Vienna with the most rewarding memories in the scientific, the technical, and the social aspects, and that those unable to attend find the proceedings a valuable substitute for their participation.

**Heinrich Ebner
Christian Heipke
Konrad Eder**

The International Archives of Photogrammetry and Remote Sensing
Volume XXXI, Part B3
ISPRS Commission III - Theory and Algorithms

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