CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Contents

Technical Program Committee xii
Introduction xiii

Part One

SESSION A1 METRIC VISION SYSTEMS I

Working group V/1: digital and real-time close-range photogrammetry
S. F. El-Hakim, National Research Council of Canada (Canada); K. W. Wong, Univ. of Illinois at Urbana-Champaign (USA) 2

Experience with two vision systems
K. W. Wong, M. Lew, Y. Ke, Univ. of Illinois at Urbana-Champaign (USA) 3

Vision system development in a space-simulation laboratory
S. G. Maclean, Canadian Space Agency (Canada); M. Rioux, F. Blais, National Research Council (Canada); J. Grodski, Defence and Civil Institute of Environmental Medicine (Canada); P. Milgram, Univ. of Toronto (Canada); H. F. L. Pinkney, National Research Council (Canada); B. A. Aikenhead, Canadian Space Agency (Canada) 8

Integration of a GPS receiver and a stereo-vision system in a vehicle
K. Novak, Ohio State Univ. (USA) 16

Real-time close-range 3-D noncontact volume and motion measurements
R. Wilson, F. Leberl, Vexcel Corp. (USA) 24

Real-time photogrammetry with lateral-effect photodiodes: state-of-the-art and recent investigations
P. Krzystek, Inpho GmbH (FRG) 30

SESSION B1 INTEGRATING PHOTOGRAMMETRY AND CAD

Working Group V/5: photogrammetry in architecture and archaeology
R. W. A. Dallas, Univ. of York (England); L. Mauelshagen, Deutsches Bergbau-Museum Bochum (FRG) 40

Large-scale stereophotogrammetric survey and computer data processing on particular works of art
A. Belli, FoART (Italy); W. Ferri, Univ. di Pisa (Italy) 42

Photogrammetric system and cost analysis for architectural and archaeological surveys
L. Baratin, C. di Thiene, F. Guerra, Istituto Univ. di Architettura (Italy) 51

PADRAS: from drawing system to CAD and database system
H. Hasegawa, M. Ueda, K. Uesugi, PASCO Corp. (Japan) 59

Main Palace of Santa Rosa: XTAMPAK a geodetic-photogrammetric documentation
E. Heine, R. Kostka, A. Reiter, Technische Univ. Graz (Austria) 67

Combined use of photogrammetry and CAD in the reconstruction of fire-damaged buildings
D. Stevens, W. M. McKay, AMC Ltd. (UK); D. Fowler, Conservation Practice (UK) 77

SESSION A2 CCD-CAMERA PERFORMANCE AND CALIBRATION

Image-recording systems for close-range photogrammetry
T. Luhmann, Kern & Co. AG (Switzerland) 86

Technology and practical problems of pixel-synchronous CCD data acquisition for optical metrology applications
J. M. Raynor, P. Seitz, Paul Scherrer Institute (Switzerland) 96

Calibration of a color CCD camera with 3000×2300 picture elements
R. Lenz, Technische Univ. München (FRG); U. Lenz, CCD Videometrie (FRG) 104

Metric aspects of zoom vision
A. G. Wiley, K. W. Wong, Univ. of Illinois at Urbana-Champaign (USA) 112

(continued)

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CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Photogrammetric investigation of CCD cameras
W. Bösemann, R. Godding, W. Riechmann, Technische Univ. Braunschweig (FRG) 119

SESSION B2 LOW-COST APPROACHES TO PHOTOGRAMMETRIC RECORDING

Photogrammetric potential of small-format photography
A. Georgopoulos, NTUA (Greece) 128

Ein kostengünstiges photogrammetrisches auswertesystem: erfahrungen mit architekturanwendungen *(English abstract at end of paper)*
F.-J. Heimes, R. Puruckherr, Fachhochschule Bochum (FRG); D. Ludwig, SPUR (FRG) 138

Der einsatz des analytischen auswertesystems rolleimetric MR2 in der bauforschung *(English abstract)*
B. H. Müller, Univ. Bamberg (FRG) 149

New low-cost analytical plotter applied to architectural drawings and crack-propagation studies
J. Uren, P. R. Thomas, Univ. of Leeds (UK) 157

SESSION A3 NEW TECHNOLOGIES

Analytical treatment and description of the altimetric check of the St. Marcus' Basilica in Venice
R. Brumana, B. Crippa, G. Vassena, Politecnico di Milano (Italy) 166

Überwachung von steinverwitterung durch makro-photogrammetrie *(English abstract)*
L. Mauelshagen, B. Strackenbrock, Deutsches Bergbau-Museum Bochum (FRG) 174

L'image photogrammetrique de synthese *(English abstract at end of paper)*
J.-P. Saint-Aubin, Bureau Image & Nouvelles Technologies (France) 182

Experiences with visualization of architectural objects
M. Stephani, L. Tang, Technical Univ. (FRG) 191

SESSION B3 ALGORITHMIC ASPECTS IN IMAGE ANALYSIS I

Working group reort ISPRS WG V/3
D. Fritsch, Technical Univ. of Munich (FRG); J. P. Muller, Univ. College of London (UK) 198

Aspect graphs: an introduction and survey of recent results, K. W. Bowyer, Univ. of South Florida (USA); C. R. Dyer, Univ. of Wisconsin (USA) 200

Combining different information sources for reconstruction of 3-D objects in digital images
P. Axelsson, E. Gülch, J. Stokes, C. Roesler, Royal Institute of Technology (Sweden) 209

Disparity space and dynamic programming for automatic production of very dense range maps
R. Baldwin, H. Yamada, Electrotechnical Lab. (Japan); K. Yamamoto, Polytechnic East London (UK) 217

3-D surface reconstruction from contour line image by a regularization method
S. Muraki, N. Yokoya, K. Yamamoto, Electrotechnical Lab. (Japan) 226

SESSION A4 ANALOGUE CAMERAS

Physical effects of film deformation in small-format camera calibration
S. Robson, City Univ. (UK) 236

Correction model for variation of distortion within the photographic field
C. S. Fraser, Geodetic Services, Inc. (USA); M. R. Shortis, Univ. of Melbourne (Australia) 244

Large-format film camera for high-precision object recording
J. Dold, Technische Univ. Braunschweig (FRG) 252

Eine neue 4"× 5" aufnahmekammer für die nahbereichsphotogrammetrie *(English abstract)*
J. Peipe, Univ. der Bundeswehr München (FRG) 256

SESSION B4 ALGORITHMIC ASPECTS IN IMAGE ANALYSIS II

Fast and precise method to extract vanishing points
M. Straforini, C. Coelho, M. Campani, Dip. di Fisica (Italy) 266

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Range image segmentation based on function approximation
G. Maître, H. Hügli, F. Tièche, J. P. Amann, Univ. of Neuchâtel (Switzerland) 275

Real-time colour classification for preprocessing photogrammetry images
R. Massen, G. Volk, Transfer Ctr. Constance for Image Data Processing (FRG) 283

New statistical texture feature: direction measure
X. Yu, B. Yuan, Northern Jiaotong Univ. (China) 291

VX-series of interactive film scanners: film-based softcopy photogrammetry
F. W. Leberl, Vexcel Corp. (USA) 299

Adjustment and image processing of scanned photographs within a graphical 3-D editor
W. Benning, C. Effkemann, Rheinisch-Westfälische Technische Hochschule Aachen (FRG) 308

System for the photogrammetric evaluation of digitized high-speed images in the automobile industry
R. Godding, Univ. of Braunschweig (FRG) 314

SESSION A5 DIGITIZATION AND CALIBRATION

Kern SPACE theodolite calibration
S. Kyle, R. Loser, J. Rogers, Kern & Co. AG (Switzerland) 322

Calibration of comparators and digitizers without nominal grid values as control data
B. Wrobel, W. Lin, C. Busch, Technical Univ. Darmstadt (FRG) 330

SESSION B5 THE INTEGRATION OF PHOTOGRAMMETRY AND CAD/CAM

Nahbereichs-photogrammetrie im CAI-verbund *(English abstract at end of paper)*
R. Hegelmann, Volkswagen AG (FRG) 340

CAD system use for photogrammetric measurements of Agip's offshore structures
M. Rampolli, E. Bonora, Agip SpA (Italy) 349

Monitoring the fabrication process for as-built analysis and generation
S. Jayaram, Y. J. Beliveau, R. W. Conners, Virginia Polytechnic Institute and State Univ. (USA) 357

SESSION A6 ROBOT VISION AND REAL-TIME TRACKING

Real-time close-range 3-D motion measurements for dental medicine
K. Maurice, F. Leberl, S. Curry, W. Kober, Vexcel Corp. (USA) 366

CANEX-2 Space Vision System experiments for shuttle flight STS-54
H. F. L. Pinkney, C. I. Perratt, National Research Council of Canada (Canada); S. G. MacLean, Canadian Space Agency (Canada) 374

Building a 2-D workspace map for mobile robots by stereo vision and registration of marks
W-Z. Wu, W.-N. Lie, Y.-C. Chen, National Tsing Hua Univ. (Taiwan) 382

Digital photogrammetry for determination of tracer particle coordinates in turbulent flow research
H.-G. Maas, ETH Zurich (Switzerland) 391

Robot systems: techniques applications, and metamorphic effects on the profession
H. J. Matthias, ETH Zurich (Switzerland) 399

SESSION B6 PHOTOGRAMMETRY FOR INDUSTRIAL MEASUREMENT

Photogrammetric quality control during the construction of a submarine
A. van Voorden, Delft Univ. of Technology (Netherlands) 408

Photogrammetric surveys of the mirror support cell of the Keck optical telescope
P. C. Gustafson, Geodetic Services, Inc. (USA) 417

Structural deformation from stereo nonmetric cameras and a bundle adjustment
J. G. Fryer, Univ. of Newcastle (Australia) 425

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

First-order design strategies for industrial photogrammetry
D. Fritsch, Technical Univ. of Munich (FRG); F. Crosilla, Univ. of Udine (Italy) 432

SESSION A7 IMAGE ANALYSIS SYSTEMS AND SURFACE RECONSTRUCTION

Close-range digital photogrammetry system
J. C. Trinder, T. Tjugiarto, B. E. Donnelly, Univ. of New South Wales (Australia) 440

Digital monocompilation system
G. Capanni, E. Muciaccia, Galileo Siscam SpA (Italy) 448

Survey and examination of subpixel measurement techniques
G. A. W. West, T. A. Clarke, City Univ. (UK) 456

Hierarchical approach to reconstruct surfaces by using iteratively rectified imagery
T. Schenk, J.-C. Li, C. K. Toth, Ohio State Univ. (USA) 464

Zur wahl der facettierungsparameter für die oberflächenrekonstruktion mit FAST Vision *(English abstract)*
B. Wrobel, J. Müller, Technische Univ. Darmstadt (FRG) 471

SESSION B7 METRIC VISION SYSTEMS II

Some solutions to vision-dimensional metrology problems
S. F. El-Hakim, National Research Council of Canada (Canada) 480

Integrated system for real-time and on-line applications in industrial photogrammetry
T. Luhmann, Kern & Co. AG (Switzerland) 488

Fast and robust range data acquisition in a low-cost environment
T. G. Stahs, F. M. Wahl, Technical Univ. of Braunschweig (FRG) 496

Systeme automatisé de mesures et de représentations d'objets basé sur l'utilisation de caméras numeriques *(English absract at end of paper)*
M. Boulianne, J. Pageau, A. Dubé, R. Larochelle, Univ. Laval (Canada) 504

Precise object determination by digital macro photogrammetry
K. Jacobsen, H. Hielscher, B. Husen, Univ. of Hannover (FRG); U. Benther, Volkswagen AG (FRG) 511

SESSION A8 PROCESSING OF LARGE-SCALE AERIAL PHOTOGRAPHS

Quality assessment of a model-oriented stereo method
W. Luo, H. Maitre, Telecom Paris (France) 518

Workstation-based image acquisition and processing instrument for spatial analysis of vegetation
J. Rasure, T. Sauer, C. Gage, Univ. of New Mexico (USA) 526

Noise and object elimination from automatic correlation data by a finite-element algorithm
I. da Silva, ETH Zurich (Switzerland) and EESC/USP (Brazil) 534

Digital orthoprojection of ultrahigh resolution images
A. Gerhard, SIGNUM Computer GmbH (FRG); H. Renz, H. Kuhn, Landesvermessungsamt NRW (FRG) 542

SESSION B8 HARDWARE ARCHITECTURE, REAL-TIME ANALYSIS, AND IMAGE SYNTHESIS

SYDAMA II: a fast computer for machine vision
A. Gunzinger, W. Guggenbühl, E. Hiltebrand, S. Mathis, P. Schaeren, B. Schneuwly, D. Stokar, M. Zeltner, ETH Zurich (Switzerland) 550

Pattern recognition with parallel associative memory
C. K. Toth, T. Schenk, Ohio State Univ. (USA) 558

Three-dimensional reconstruction of solid models from multidirectional images and applications to industrial mensuration
J. Doi, K. Koeda, Univ. of Tokyo (Japan); T. Miyake, Asahi Glass Co., Ltd. (Japan) 564
Target search using template images
H. Haggrén, L. Haajanen, Helsinki Univ. of Technology (Finland) 572

SESSION A9 3-D MEDICAL IMAGING AND MICROSCOPY

Quantitative evaluation of the human knee in 3-D
B. Münch, P. Rüegsegger, Univ. of Zurich and ETH Zurich (Switzerland) 580
X-ray photogrammetry of artificial hip joints
A. R. Turner-Smith, S. P. White, C. Bulstrode, Univ. of Oxford (UK) 587
Processing of scanning electron microscope images on wild BC2 analytical plotter
W. Feng, L. Sun, Wuhan Technical Univ. of Surveying and Mapping (China) 595
Nonevasive quantitative analysis of the left ventricle contractions with MR imaging
S. E. Maier, P. Boesiger, G. McKinnon, R. E. Schoepflin, Univ. of Zurich and ETH Zurich (Switzerland); O. Hess, H. P. Krayenbuhl, Univ. Hospital Zurich (Switzerland); M. Fuderer, Philips Medical Systems Best NL (Switzerland) 602
Computer-aided 3-D localization of chromosome 1 within nuclei of human sperm cells
T. Leemann, V. Baggiolini, Univ. of Zurich and ETH Zurich (Switzerland); H. Walt, P. Emmerich, Univ. Hospital (Switzerland); M. Anliker, Univ. of Zurich and ETH Zurich (Switzerland) 605

SESSION B9 ALGORITHMIC ASPECTS IN IMAGE ANALYSIS III

Straight-edge extraction and matching
Y. Liu, T. S. Huang, Univ. of Illinois at Urbana-Champaign (USA) 612
Trinocular vision for automatic and robust 3-D determination of the trajectories of moving objects
E. P. Baltsavias, D. Stallmann, ETH Zurich (Switzerland) 620
New method for automated control-point selection in image registration
L.-H. Lee, L.-C. Chen, National Central Univ. (Taiwan) 630
Motion analysis of two stereo views and its applications
Z. Zhang, O. D. Faugeras, INRIA Sophia-Antipolis (France) 638
Knowledge-based adaptive identification of 2-D image structures
J. Pauli, Technische Univ. München (FRG) 646

Part Two

SESSION A10 SPECIAL RECORDING, SYSTEMS, AND CALIBRATION PROCEDURES

New camera calibration method for robotic vision
L. Paquette, R. Stampfler, Univ. du Québec a Trois-Rivières (Canada); W. A. Davis, Univ. of Alberta (Canada); T. M. Caelli, Univ. of Queen (Canada) 656
Laboratory calibration and characterization of video cameras
A. W. Burner, W. L. Snow, NASA Langley Research Ctr. (USA); M. R. Shortis, Univ. of Melbourne (Australia); W. K. Goad, NASA Langley Research Ctr. (USA) 664

SESSION B10 ARCHAEOLOGY

Levés archéologiques à l'aide de caméras numériques et de vidéorestituteurs
(English abstract at end of paper)
M. Boulianne, J.-P. Agnard, P.-A. Gagnon, Univ. Laval (Canada) 674

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Photogrammetry and remote-sensing project in survey of the Emperor Qin Shi Huang's mausoleum
D. Song, W. Yang, P.-Z. Zhao, Ministry of Coal Industry (China) 680
Zur photogrammetrischen dokumentation von archäologischen kleinfunden *(English abstract)*
M. Gruber, Technische Univ. Graz (Austria) 690
Siedlungsarchäologie anhand von fernerkundungsdaten *(English abstract)*
J. Häser, Freie Univ. Berlin (FRG) 695

SESSION A11 BIOLOGICAL SURFACE MEASUREMENT

Photogrammetric surveys of human faces for medical purposes
P. Waldhäusl, G. Forkert, Technical Univ. Vienna (Austria); M. Rasse, B. Balogh, Univ. of Vienna (Austria) 704
Moiré as a dynamic method of evaluating postural corrections
A. Alberti, Univ. de Biostereometrica (Portugal) 711
Cornea shape measurement
F. A. S. Banda, J.-P. Muller, Univ. College London (UK) 720

SESSION B11 BENEFITS OF IMAGE ANALYSIS AND IMAGE SYNTHESIS

Interactive photogrammetric system for mapping 3-D objects
D. E. Knopp, Vexcel Corp. (USA) 728
Fundamentals of on-line guaging for machine vision
A. Novini, Ball Corp. (USA) 736
Two invariants in edge-based stereo analysis
S. I. Olsen, Univ. of Copenhagen (Denmark) 747
Considerations on an integration of FAST Vision within a photogrammetric expert system
M. Kempa, Technische Hochschule Darmstadt (FRG) 753

SESSION A12 BIOLOGICAL SURFACE MEASUREMENT II AND HUMAN MOTION ANALYSIS

Near real-time biostereometric studies of regional body-surface motion in respiration
L. P. Adams, Univ. of Cape Town (South Africa); B. Gutschow, Medical Research Council (South Africa); A. Tregidga, M. Klein, Univ. of Cape Town (South Africa) 762
Untersuchungen von zahnfüllungen anhand von REM-zeitreihen *(English abstract)*
M. Gruber, Technische Univ. Graz (Austria) 768
Kinesis: a model-driven approach to human motion analysis
P. Morasso, M. Solari, Univ. of Genova (Italy) 775
Simple devices for the motography of respiration
O. Leder, H. Kurz, M. Langer, Albert-Ludwigs-Univ. (FRG) 781
Classification of hyperkinetic movements with 3-D kinematic measurements
C. Albani, M. Meyer, Univ. Hospital (Switzerland) 786

SESSION B12 DIGITAL PHOTOGRAMMETRIC SYSTEMS IN INDUSTRIAL MEASUREMENT

Artificial neural networks for photogrammetric target processing
W. C. Chiu, E. L. Hines, Univ. of Warwick (UK); C. Forno, R. Hunt, S. Oldfield, National Physical Lab. (UK) 794
Traffic flow measurement by video image processing
T. Hashimoto, S. Murai, Univ. of Tokyo (Japan) 802
Digital object models of water surfaces
J. Peipe, Bundeswehr Univ. Munich (FRG); M. Stephani, Technical Univ. Munich (FRG) 809
Concept of an optical coordinate measurement machine
C.-T. Schneider, K. Sinnreich, AICON GmbH (FRG) 816

Instrumentation requirements for forensic analysis
G. Robertson, Gary Robertson & Associates, Inc. (Canada) 823

POSTER PAPERS

Use of photogrammetry in aviation equipment flight testing
K. Albakyan, Flight Research Institute (USSR) 830

Machine vision system for measurement of biological shapes
A. Alam Eldin, Univ. of Suez-Canal (Egypt); S. Lofty, Univ. of Mansoura (Egypt); K. Botros, F. Ibrahim, M. Elshahat, Univ. of Suez-Canal (Egypt) 837

Correction of image deformations using B-spline surfaces in digital close-range photogrammetry
K. Amdal, N. Thune, O. H. Dørum, Norwegian Institute of Technology (Norway) 845

Three-dimensional lower-limb bony-alignment model from precision radiographs
D. Anderson, H. G. Koch, J. U. Baumann, R. Brunner, Univ. of Basel (Switzerland) 855

Calculation of analytical elements in space using a contour algorithm
K. Andresen, R. Helsch, Technical Univ. Braunschweig (FRG) 863

Experiments on real-time raster photogrammetry
E. Baj, M. Rampolli, Univ. of Milan (Italy) 870

Image processing for determining joint parameters in difficult rock slope conditions
L. Baratin, Univ. di Venezia (Italy); F. Crosilla, P. Paronuzzi, Univ. di Udine (Italy) 878

3-D collocation filtering
R. Barzaghi, B. Crippa, Politecnico di Milano (Italy) 886

Reversed engineering of a product model
Y. J. Beliveau, S. Jayaram, S. D. Johnson, Virginia Polytechnic Institute and State Univ. (USA) 894

Optical measurement of vehicle body shapes in the wind tunnel
H. Bruhn, Volkswagen AG (FRG); C.-T. Schneider, AICON GmbH (FRG) 900

Sant'Ambrogio's Basilica in Milan: a study on photogrammetric surveys in the S. Vittore in Ciel d'Oro's dome
R. Brumana, Politecnico di Milano (Italy) 908

Pose determination of polyhedral objects from unconstrained 3-D edge points
H. Bunke, Institut für Informatik und angewandte Mathematik (Switzerland); H.-S. Lim, IBM Corp. (USA) 916

Digital stereo compilation on analytical plotter Digicart 40: principles of work, some results, and practical applications
G. Capanni, F. Flamigni, F. Argenti, Galileo Siscam SpA (Italy) 924

Automated relative-orientation modeling using feature matching
L.-C. Chen, L.-H. Lee, J.-S. Hsia, National Central Univ. (Taiwan) 932

Triangulation-based profiler
T. A. Clarke, N. E. Lindsey, City Univ. (UK) 940

Application of computer-assisted photogrammetry in the documentation of excavations and care of monuments in Egypt
G. Csáki, Institute of Geodesy, Cartography and Remote Sensing (Hungary) 948

Vectorization from aerial photographs applying the Hough transform method
I. da Silva, ETH Zurich (Switzerland) and EESC/USP (Brazil) 956

Study of the interpretation and location of the ruins of the ancient graves using remote-sensing technique
D. Song, S. Yao, Ministry of Coal Industry (China) 964

Radiometric noise in digitized photographs
H. Diehl, MBB GmbH (FRG) 974

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Integration of ray-tracing algorithms into the analytical stereo plotting of multimedia images
G. Ditze, Univ. Bonn (FRG) 984

Studien zur photogrammetrischen und ultraschalltopometrischen vermessung der menschlichen rückenoberfläche *(English abstract at end of paper)*
H. Gäbel, G. Schumpe, Orthopädische Univ. (FRG) 992

Performance in close-range systems
J. W. C. Gates, Univ. College London (UK) 1001

Automated stereo measurements of short gravity-capillary waves
A. P. Gracian, Univ. College London and Institute of Oceanographic Sciences (UK); J. P. Muller, Univ. College London (UK); P. G. Challenor, M. A. Srokosz, Institute of Oceanographic Sciences (UK) 1008

Estimating approximate values before bundle adjustment in close-range photogrammetry: a review
I. Hådem, Univ. of Trondheim (Norway) 1016

CCD-camera calibration without a control field
Y. D. Huang, I. Harley, Univ. College London (UK) 1028

Comparing the image-matching methods of the two-stage and FFT
J.-T. Hwang, R.-G. Chang, Chung Cheng Institute of Technology (Taiwan) 1035

Measurement of the face's topography by digitally enhanced shadow moiré
A. Ivnitsky, A. S. Voloshin, Lehigh Univ. (USA) 1043

Image representation in hypercolumnar structure by means of associative memory
H. Janßen, J. Kopecz, H. Mallot, Ruhr-Univ. of Bochum (FRG) 1050

Digital close-range photogrammetry for surface measurement
W. Jeschke, Technische Univ. Berlin (FRG) 1058

PC-based moiré for field studies on the human body surface
H. Kurz, O. Leder, Albert-Ludwigs-Univ. (FRG) 1066

Application of hybrid coherent-optical techniques and devices for efficient image processing for nontopographic use in remote sensing
N. N. Mashnikov, V. V. Nekrasov, V. A. Stefanov, L. M. Tsiboulkin,
Research Institute of Automatic Systems (USSR) 1074

Möglichkeiten der bestimmung von näherungswerten für die oberflächenrekonstruktion mit FAST Vision *(English abstract)*
J. Müller, Technische Univ. Darmstadt (FRG) 1082

Interfacing quantitative computed tomography with finite element modeling
R. Müller, ETH Zurich and the Univ. of Zurich (Switzerland); B. Merz, Sulzer Medical Engineering Winterthur (Switzerland); P. Rüegsegger, ETH Zurich and Univ. of Zurich (Switzerland) 1092

Application of Monte Carlo analyses in terrestrial and close-range photogrammetry
H. N. Nagaraja, Univ. of Nairobi (Kenya) 1100

Anlagenüberwachung mit mitteln der photogrammetrie–anforderungen an komponenten numerische ergebnisse und graphische präsentation *(English abstract at end of paper)*
H.-J. Przybilla, RWE Energie AG (FRG) 1108

Reseau-scanning camera: conception and first measurement results
W. Riechmann, Technischen Univ. Braunschweig (FRG) 1117

Aircraft crash analysis utilizing a photogrammetric approach
G. Robertson, Gary Robertson & Associates, Inc. (Canada) 1126

Examples of human motion analysis performed with analytical and digital photogrammetric systems
H. Rüdenauer, B. Winck, Univ. Essen (FRG) 1134

Geological structure measurement in a CAD environment
H. Rüdenauer, Univ. Essen (FRG); G. Rafat, Deutsche Montan Technologie (FRG) 1142

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Generalizing the aspect-graph concept to include articulated assemblies
M. Sallam, K. Bowyer, Univ. of South Florida (USA) 1150
Three-dimensional vision for robot control using novel stereoscopic sensors
P. Shuttleworth, M. Robinson, S. Godber, Nottingham Polytechnic (UK) 1157
Strata deformation and subsidence study by close-range photogrammetry
R. Singh, T. N. Singh, CMRS (India) 1164
Geometric three-dimensional model for vision artificial intelligence
R. Wang, Shanghai Institute of Technical Physics (China) 1171
Determination of the deformation of the bridge model in real time with CCD solid state camera
W. Li, G. Li, T. Xu, Tongji Univ. (China) 1181
Determining the real shape of hyperbolic cooling tower
J. Wozniak, Technical Univ. of Wroclaw (Poland) 1189
Algorithm for point positioning on digital images and in object space
J. Wu, J. H. Chang, National Central Univ. (Taiwan) 1196
Modified Markov random field model and its applications to texture synthesis and data compression
X. Yu, B. Yuan, Northern Jiaotong Univ. (China) 1203
Die anwendung von methoden der fernerkundung und luftphotogrammetrie in der archaeologischen prospektion *(English abstract at end of paper)*
R. Zantopp, Landschaftsverband Rheinland/Rheinisches Amt fuer Bodendenkmalpflege (FRG) 1210
Topography moiré using phase-stepping method with CCD camera
D. Zawieska, A. Spik, Warsaw Univ. of Technology (Poland) 1214
Computer-aided diagnoses of lung diseases through radiographs
F. Zhou, Univ. Hospital (Switzerland); L. J. He, Beijing Institute of Tumor Studies (China); X. Q. Wu, Northern Jiaotong Univ. (China) 1220
Object-points detection in a photogrammetric test field
H. B. Zhou, ETH Zurich (Switzerland) 1227
Update calibration of a photogrammetric station
I. Heikkila, Helsinki Univ. of Technology 1234
Author Index 1243

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

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WG V/3: Image Analysis and Image Synthesis in Close-Range Photogrammetry
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Dr. Jan-Peter Muller, University College London (England)

WG V/4: Structural and Industrial Measurements with Consideration of CAD/CAM Aspects
Dr. Clive S. Fraser, Geodetic Services Inc., Melbourne (USA)
Prof. Dr. Heinz Rüther, University of Cape Town (South Africa)

WG V/5: Photogrammetry in Architecture and Archaeology
Ross W. A. Dallas, University of York (England)
Dr. Landolf Mauelshagen, Deutsches Bergbau-Museum Bochum (FRG)

WG V/6: Biostereometrics and Medical Imaging
Prof. Dr. Andreas Engel, University of Basel (Switzerland)
Prof. Dr. Peter Niederer, ETH Zurich (Switzerland)

Associate Group: Robot Vision
Dr. Reimar Lenz, Technical University Munich (FRG)

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CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

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INTRODUCTION

This symposium was organised by Commission V "Close-Range Photogrammetry and Machine Vision" of the International Society for Photogrammetry and Remote Sensing (ISPRS) and by the Institute of Geodesy and Photogrammetry, Swiss Federal Institute of Technology (ETH) Zurich. The aim is to bring together experts from various disciplines who are concerned with the design, development, and application of modern analogue, digital, and hybrid vision systems that operate in a close-range environment. The conference is designed for scientists, engineers, and users from universities, research institutes, industry, governmental organisations, and engineering firms in the fields of photogrammetry, machine vision, and robot vision.

In recent years the modern vision disciplines of computer vision, machine vision, and robot vision have found widespread interest in the scientific and engineering world. The further development of these disciplines is crucial for advancements in various other fields of science, technology, and industry. As the scientific and engineering concepts of vision systems are increasingly being examined in practical application environments, the need for precise, reliable, and robust performance with respect to quantitative measurements becomes obvious. Quantitative measurement, on the other hand, has been a familiar domain to photogrammetrists for many years. The intention of this symposium is to combine the longstanding, application-proven expertise of classical photogrammetric procedures with up-to-date, forward-looking vision hardware and algorithmic concepts in order to overcome current limitations and to arrive at truly efficient and reliable systems that will open up new and promising fields of application.

The topics relate, but are not restricted to, the terms of reference of the Working Groups of ISPRS Commission V:

WG V/1: Digital and Real-time Close-Range Photogrammetric Systems
- Real-time vision systems for metric measurements
- System hardware and software integration
- Demonstration of systems in actual application environments

WG V/2: Close-Range Imaging Systems—Calibration and Performance
- Geometric and radiometric characteristics of CCD and hybrid imaging systems
- Procedures and strategies for calibration and orientation
- High-precision photogrammetry ($<10^{-5}$) with large-format photographic images and CCD matrix sensors in image space

WG V/3: Image Analysis and Image Synthesis in Close-Range Photogrammetry
- Algorithmic aspects in image analysis
- Visualisation techniques in image synthesis
- Hardware architecture for real-time image analysis and image synthesis

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

WG V/4: Structural and Industrial Measurements with Consideration of CAD/CAM Aspects
- Integration of CAD/CAM into the photogrammetric measurement process
- Digital photogrammetric systems for industrial mensuration
- Transfer of photogrammetric technology to the industrial design, engineering, and manufacturing sector

WG V/5: Photogrammetry in Architecture and Archaeology
- Application of new photogrammetric technology to architectural and archaeological surveying and recording
- Possibilities offered by new low-cost photogrammetric systems and video-based systems
- Study of appropriate applications of CAD/CAM and LIS/GIS

WG V/6: Biostereometrics and Medical Imaging
- Human motion analysis and biological surface measurements
- 3-D medical imaging and anthropometry; 3-D microscopy
- Hardware and software for use in medical imaging

Associate Group: Robot Vision
- Recent developments
- Applications

A total of 189 Technical Papers were accepted for presentation at the symposium. One hundred fifty-four Technical Papers and three Working Group reports are collected in these proceedings. For the first time in ISPRS Commission V Symposium history, the large number and high quality of the papers made it necessary to organise two technical sessions in parallel. One hundred eighteen papers are presented in these sessions, while seventy-one are given at poster sessions. This clearly indicates the great interest that the scientific and technical topics of Commission V generate in the photogrammetric and machine vision communities and other related disciplines.

We expect that this symposium will provide a stage for the exchange of ideas and experiences that will further advance the vision-based close-range measurement techniques. It is our hope that all participants will leave Zurich with the recollection of a most rewarding conference, with respect to both the scientific and the social program.

Armin Gruen
President of ISPRS Commission V
Symposium Director
Editor Symposium Proceedings

Horst A. Beyer
Secretary of ISPRS Commission V
Symposium Secretary

Emmanuel P. Baltsavias
Coeditor Symposium Proceedings

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Contents

Technical Program Committee xii
Introduction xiii

Part One

SESSION A1 METRIC VISION SYSTEMS I

Working group V/1: digital and real-time close-range photogrammetry
S. F. El-Hakim, National Research Council of Canada (Canada); K. W. Wong, Univ. of Illinois at Urbana-Champaign (USA) 2

Experience with two vision systems
K. W. Wong, M. Lew, Y. Ke, Univ. of Illinois at Urbana-Champaign (USA) 3

Vision system development in a space-simulation laboratory
S. G. Maclean, Canadian Space Agency (Canada); M. Rioux, F. Blais, National Research Council (Canada); J. Grodski, Defence and Civil Institute of Environmental Medicine (Canada); P. Milgram, Univ. of Toronto (Canada); H. F. L. Pinkney, National Research Council (Canada); B. A. Aikenhead, Canadian Space Agency (Canada) 8

Integration of a GPS receiver and a stereo-vision system in a vehicle
K. Novak, Ohio State Univ. (USA) 16

Real-time close-range 3-D noncontact volume and motion measurements
R. Wilson, F. Leberl, Vexcel Corp. (USA) 24

Real-time photogrammetry with lateral-effect photodiodes: state-of-the-art and recent investigations
P. Krzystek, Inpho GmbH (FRG) 30

SESSION B1 INTEGRATING PHOTOGRAMMETRY AND CAD

Working Group V/5: photogrammetry in architecture and archaeology
R. W. A. Dallas, Univ. of York (England); L. Mauelshagen, Deutsches Bergbau-Museum Bochum (FRG) 40

Large-scale stereophotogrammetric survey and computer data processing on particular works of art
A. Belli, FoART (Italy); W. Ferri, Univ. di Pisa (Italy) 42

Photogrammetric system and cost analysis for architectural and archaeological surveys
L. Baratin, C. di Thiene, F. Guerra, Istituto Univ. di Architettura (Italy) 51

PADRAS: from drawing system to CAD and database system
H. Hasegawa, M. Ueda, K. Uesugi, PASCO Corp. (Japan) 59

Main Palace of Santa Rosa: XTAMPAK a geodetic-photogrammetric documentation
E. Heine, R. Kostka, A. Reiter, Technische Univ. Graz (Austria) 67

Combined use of photogrammetry and CAD in the reconstruction of fire-damaged buildings
D. Stevens, W. M. McKay, AMC Ltd. (UK); D. Fowler, Conservation Practice (UK) 77

SESSION A2 CCD-CAMERA PERFORMANCE AND CALIBRATION

Image-recording systems for close-range photogrammetry
T. Luhmann, Kern & Co. AG (Switzerland) 86

Technology and practical problems of pixel-synchronous CCD data acquisition for optical metrology applications
J. M. Raynor, P. Seitz, Paul Scherrer Institute (Switzerland) 96

Calibration of a color CCD camera with 3000×2300 picture elements
R. Lenz, Technische Univ. München (FRG); U. Lenz, CCD Videometrie (FRG) 104

Metric aspects of zoom vision
A. G. Wiley, K. W. Wong, Univ. of Illinois at Urbana-Champaign (USA) 112

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Photogrammetric investigation of CCD cameras
W. Bösemann, R. Godding, W. Riechmann, Technische Univ. Braunschweig (FRG) 119

SESSION B2 LOW-COST APPROACHES TO PHOTOGRAMMETRIC RECORDING

Photogrammetric potential of small-format photography
A. Georgopoulos, NTUA (Greece) 128

Ein kostengünstiges photogrammetrisches auswertesystem: erfahrungen mit architekturanwendungen *(English abstract at end of paper)*
F.-J. Heimes, R. Puruckherr, Fachhochschule Bochum (FRG); D. Ludwig, SPUR (FRG) 138

Der einsatz des analytischen auswertesystems rolleimetric MR2 in der bauforschung *(English abstract)*
B. H. Müller, Univ. Bamberg (FRG) 149

New low-cost analytical plotter applied to architectural drawings and crack-propagation studies
J. Uren, P. R. Thomas, Univ. of Leeds (UK) 157

SESSION A3 NEW TECHNOLOGIES

Analytical treatment and description of the altimetric check of the St. Marcus' Basilica in Venice
R. Brumana, B. Crippa, G. Vassena, Politecnico di Milano (Italy) 166

Überwachung von steinverwitterung durch makro-photogrammetrie *(English abstract)*
L. Mauelshagen, B. Strackenbrock, Deutsches Bergbau-Museum Bochum (FRG) 174

L'image photogrammetrique de synthese *(English abstract at end of paper)*
J.-P. Saint-Aubin, Bureau Image & Nouvelles Technologies (France) 182

Experiences with visualization of architectural objects
M. Stephani, L. Tang, Technical Univ. (FRG) 191

SESSION B3 ALGORITHMIC ASPECTS IN IMAGE ANALYSIS I

Working group reort ISPRS WG V/3
D. Fritsch, Technical Univ. of Munich (FRG); J. P. Muller, Univ. College of London (UK) 198

Aspect graphs: an introduction and survey of recent results, K. W. Bowyer, Univ. of South Florida (USA); C. R. Dyer, Univ. of Wisconsin (USA) 200

Combining different information sources for reconstruction of 3-D objects in digital images
P. Axelsson, E. Gülch, J. Stokes, C. Roesler, Royal Institute of Technology (Sweden) 209

Disparity space and dynamic programming for automatic production of very dense range maps
R. Baldwin, H. Yamada, Electrotechnical Lab. (Japan); K. Yamamoto, Polytechnic East London (UK) 217

3-D surface reconstruction from contour line image by a regularization method
S. Muraki, N. Yokoya, K. Yamamoto, Electrotechnical Lab. (Japan) 226

SESSION A4 ANALOGUE CAMERAS

Physical effects of film deformation in small-format camera calibration
S. Robson, City Univ. (UK) 236

Correction model for variation of distortion within the photographic field
C. S. Fraser, Geodetic Services, Inc. (USA); M. R. Shortis, Univ. of Melbourne (Australia) 244

Large-format film camera for high-precision object recording
J. Dold, Technische Univ. Braunschweig (FRG) 252

Eine neue 4"× 5" aufnahmekammer für die nahbereichsphotogrammetrie *(English abstract)*
J. Peipe, Univ. der Bundeswehr München (FRG) 256

SESSION B4 ALGORITHMIC ASPECTS IN IMAGE ANALYSIS II

Fast and precise method to extract vanishing points
M. Straforini, C. Coelho, M. Campani, Dip. di Fisica (Italy) 266

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Range image segmentation based on function approximation
G. Maître, H. Hügli, F. Tièche, J. P. Amann, Univ. of Neuchâtel (Switzerland) 275

Real-time colour classification for preprocessing photogrammetry images
R. Massen, G. Volk, Transfer Ctr. Constance for Image Data Processing (FRG) 283

New statistical texture feature: direction measure
X. Yu, B. Yuan, Northern Jiaotong Univ. (China) 291

VX-series of interactive film scanners: film-based softcopy photogrammetry
F. W. Leberl, Vexcel Corp. (USA) 299

Adjustment and image processing of scanned photographs within a graphical 3-D editor
W. Benning, C. Effkemann, Rheinisch-Westfälische Technische Hochschule Aachen (FRG) 308

System for the photogrammetric evaluation of digitized high-speed images in the automobile industry
R. Godding, Univ. of Braunschweig (FRG) 314

SESSION A5 DIGITIZATION AND CALIBRATION

Kern SPACE theodolite calibration
S. Kyle, R. Loser, J. Rogers, Kern & Co. AG (Switzerland) 322

Calibration of comparators and digitizers without nominal grid values as control data
B. Wrobel, W. Lin, C. Busch, Technical Univ. Darmstadt (FRG) 330

SESSION B5 THE INTEGRATION OF PHOTOGRAMMETRY AND CAD/CAM

Nahbereichs-photogrammetrie im CAI-verbund *(English abstract at end of paper)*
R. Hegelmann, Volkswagen AG (FRG) 340

CAD system use for photogrammetric measurements of Agip's offshore structures
M. Rampolli, E. Bonora, Agip SpA (Italy) 349

Monitoring the fabrication process for as-built analysis and generation
S. Jayaram, Y. J. Beliveau, R. W. Conners, Virginia Polytechnic Institute and State Univ. (USA) 357

SESSION A6 ROBOT VISION AND REAL-TIME TRACKING

Real-time close-range 3-D motion measurements for dental medicine
K. Maurice, F. Leberl, S. Curry, W. Kober, Vexcel Corp. (USA) 366

CANEX-2 Space Vision System experiments for shuttle flight STS-54
H. F. L. Pinkney, C. I. Perratt, National Research Council of Canada (Canada); S. G. MacLean, Canadian Space Agency (Canada) 374

Building a 2-D workspace map for mobile robots by stereo vision and registration of marks
W-Z. Wu, W.-N. Lie, Y.-C. Chen, National Tsing Hua Univ. (Taiwan) 382

Digital photogrammetry for determination of tracer particle coordinates in turbulent flow research
H.-G. Maas, ETH Zurich (Switzerland) 391

Robot systems: techniques applications, and metamorphic effects on the profession
H. J. Matthias, ETH Zurich (Switzerland) 399

SESSION B6 PHOTOGRAMMETRY FOR INDUSTRIAL MEASUREMENT

Photogrammetric quality control during the construction of a submarine
A. van Voorden, Delft Univ. of Technology (Netherlands) 408

Photogrammetric surveys of the mirror support cell of the Keck optical telescope
P. C. Gustafson, Geodetic Services, Inc. (USA) 417

Structural deformation from stereo nonmetric cameras and a bundle adjustment
J. G. Fryer, Univ. of Newcastle (Australia) 425

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

First-order design strategies for industrial photogrammetry
D. Fritsch, Technical Univ. of Munich (FRG); F. Crosilla, Univ. of Udine (Italy) 432

SESSION A7 IMAGE ANALYSIS SYSTEMS AND SURFACE RECONSTRUCTION

Close-range digital photogrammetry system
J. C. Trinder, T. Tjugiarto, B. E. Donnelly, Univ. of New South Wales (Australia) 440

Digital monocompilation system
G. Capanni, E. Muciaccia, Galileo Siscam SpA (Italy) 448

Survey and examination of subpixel measurement techniques
G. A. W. West, T. A. Clarke, City Univ. (UK) 456

Hierarchical approach to reconstruct surfaces by using iteratively rectified imagery
T. Schenk, J.-C. Li, C. K. Toth, Ohio State Univ. (USA) 464

Zur wahl der facettierungsparameter für die oberflächenrekonstruktion mit FAST Vision *(English abstract)*
B. Wrobel, J. Müller, Technische Univ. Darmstadt (FRG) 471

SESSION B7 METRIC VISION SYSTEMS II

Some solutions to vision-dimensional metrology problems
S. F. El-Hakim, National Research Council of Canada (Canada) 480

Integrated system for real-time and on-line applications in industrial photogrammetry
T. Luhmann, Kern & Co. AG (Switzerland) 488

Fast and robust range data acquisition in a low-cost environment
T. G. Stahs, F. M. Wahl, Technical Univ. of Braunschweig (FRG) 496

Systeme automatisé de mesures et de représentations d'objets basé sur l'utilisation de caméras numeriques *(English absract at end of paper)*
M. Boulianne, J. Pageau, A. Dubé, R. Larochelle, Univ. Laval (Canada) 504

Precise object determination by digital macro photogrammetry
K. Jacobsen, H. Hielscher, B. Husen, Univ. of Hannover (FRG); U. Benther, Volkswagen AG (FRG) 511

SESSION A8 PROCESSING OF LARGE-SCALE AERIAL PHOTOGRAPHS

Quality assessment of a model-oriented stereo method
W. Luo, H. Maitre, Telecom Paris (France) 518

Workstation-based image acquisition and processing instrument for spatial analysis of vegetation
J. Rasure, T. Sauer, C. Gage, Univ. of New Mexico (USA) 526

Noise and object elimination from automatic correlation data by a finite-element algorithm
I. da Silva, ETH Zurich (Switzerland) and EESC/USP (Brazil) 534

Digital orthoprojection of ultrahigh resolution images
A. Gerhard, SIGNUM Computer GmbH (FRG); H. Renz, H. Kuhn, Landesvermessungsamt NRW (FRG) 542

SESSION B8 HARDWARE ARCHITECTURE, REAL-TIME ANALYSIS, AND IMAGE SYNTHESIS

SYDAMA II: a fast computer for machine vision
A. Gunzinger, W. Guggenbühl, E. Hiltebrand, S. Mathis, P. Schaeren, B. Schneuwly, D. Stokar, M. Zeltner, ETH Zurich (Switzerland) 550

Pattern recognition with parallel associative memory
C. K. Toth, T. Schenk, Ohio State Univ. (USA) 558

Three-dimensional reconstruction of solid models from multidirectional images and applications to industrial mensuration
J. Doi, K. Koeda, Univ. of Tokyo (Japan); T. Miyake, Asahi Glass Co., Ltd. (Japan) 564
Target search using template images
H. Haggrén, L. Haajanen, Helsinki Univ. of Technology (Finland) 572

SESSION A9 3-D MEDICAL IMAGING AND MICROSCOPY

Quantitative evaluation of the human knee in 3-D
B. Münch, P. Rüegsegger, Univ. of Zurich and ETH Zurich (Switzerland) 580
X-ray photogrammetry of artificial hip joints
A. R. Turner-Smith, S. P. White, C. Bulstrode, Univ. of Oxford (UK) 587
Processing of scanning electron microscope images on wild BC2 analytical plotter
W. Feng, L. Sun, Wuhan Technical Univ. of Surveying and Mapping (China) 595
Nonevasive quantitative analysis of the left ventricle contractions with MR imaging
S. E. Maier, P. Boesiger, G. McKinnon, R. E. Schoepflin, Univ. of Zurich and ETH Zurich (Switzerland); O. Hess, H. P. Krayenbuhl, Univ. Hospital Zurich (Switzerland); M. Fuderer, Philips Medical Systems Best NL (Switzerland) 602
Computer-aided 3-D localization of chromosome 1 within nuclei of human sperm cells
T. Leemann, V. Baggiolini, Univ. of Zurich and ETH Zurich (Switzerland); H. Walt, P. Emmerich, Univ. Hospital (Switzerland); M. Anliker, Univ. of Zurich and ETH Zurich (Switzerland) 605

SESSION B9 ALGORITHMIC ASPECTS IN IMAGE ANALYSIS III

Straight-edge extraction and matching
Y. Liu, T. S. Huang, Univ. of Illinois at Urbana-Champaign (USA) 612
Trinocular vision for automatic and robust 3-D determination of the trajectories of moving objects
E. P. Baltsavias, D. Stallmann, ETH Zurich (Switzerland) 620
New method for automated control-point selection in image registration
L.-H. Lee, L.-C. Chen, National Central Univ. (Taiwan) 630
Motion analysis of two stereo views and its applications
Z. Zhang, O. D. Faugeras, INRIA Sophia-Antipolis (France) 638
Knowledge-based adaptive identification of 2-D image structures
J. Pauli, Technische Univ. München (FRG) 646

Part Two

SESSION A10 SPECIAL RECORDING, SYSTEMS, AND CALIBRATION PROCEDURES

New camera calibration method for robotic vision
L. Paquette, R. Stampfler, Univ. du Québec a Trois-Rivières (Canada); W. A. Davis, Univ. of Alberta (Canada); T. M. Caelli, Univ. of Queen (Canada) 656
Laboratory calibration and characterization of video cameras
A. W. Burner, W. L. Snow, NASA Langley Research Ctr. (USA); M. R. Shortis, Univ. of Melbourne (Australia); W. K. Goad, NASA Langley Research Ctr. (USA) 664

SESSION B10 ARCHAEOLOGY

Levés archéologiques à l'aide de caméras numériques et de vidéorestituteurs
(English abstract at end of paper)
M. Boulianne, J.-P. Agnard, P.-A. Gagnon, Univ. Laval (Canada) 674

(continued)

Photogrammetry and remote-sensing project in survey of the Emperor Qin Shi Huang's mausoleum
D. Song, W. Yang, P.-Z. Zhao, Ministry of Coal Industry (China) 680
Zur photogrammetrischen dokumentation von archäologischen kleinfunden *(English abstract)*
M. Gruber, Technische Univ. Graz (Austria) 690
Siedlungsarchäologie anhand von fernerkundungsdaten *(English abstract)*
J. Häser, Freie Univ. Berlin (FRG) 695

SESSION A11 BIOLOGICAL SURFACE MEASUREMENT

Photogrammetric surveys of human faces for medical purposes
P. Waldhäusl, G. Forkert, Technical Univ. Vienna (Austria); M. Rasse, B. Balogh, Univ. of Vienna (Austria) 704
Moiré as a dynamic method of evaluating postural corrections
A. Alberti, Univ. de Biostereometrica (Portugal) 711
Cornea shape measurement
F. A. S. Banda, J.-P. Muller, Univ. College London (UK) 720

SESSION B11 BENEFITS OF IMAGE ANALYSIS AND IMAGE SYNTHESIS

Interactive photogrammetric system for mapping 3-D objects
D. E. Knopp, Vexcel Corp. (USA) 728
Fundamentals of on-line guaging for machine vision
A. Novini, Ball Corp. (USA) 736
Two invariants in edge-based stereo analysis
S. I. Olsen, Univ. of Copenhagen (Denmark) 747
Considerations on an integration of FAST Vision within a photogrammetric expert system
M. Kempa, Technische Hochschule Darmstadt (FRG) 753

SESSION A12 BIOLOGICAL SURFACE MEASUREMENT II AND HUMAN MOTION ANALYSIS

Near real-time biostereometric studies of regional body-surface motion in respiration
L. P. Adams, Univ. of Cape Town (South Africa); B. Gutschow, Medical Research Council (South Africa); A. Tregidga, M. Klein, Univ. of Cape Town (South Africa) 762
Untersuchungen von zahnfüllungen anhand von REM-zeitreihen *(English abstract)*
M. Gruber, Technische Univ. Graz (Austria) 768
Kinesis: a model-driven approach to human motion analysis
P. Morasso, M. Solari, Univ. of Genova (Italy) 775
Simple devices for the motography of respiration
O. Leder, H. Kurz, M. Langer, Albert-Ludwigs-Univ. (FRG) 781
Classification of hyperkinetic movements with 3-D kinematic measurements
C. Albani, M. Meyer, Univ. Hospital (Switzerland) 786

SESSION B12 DIGITAL PHOTOGRAMMETRIC SYSTEMS IN INDUSTRIAL MEASUREMENT

Artificial neural networks for photogrammetric target processing
W. C. Chiu, E. L. Hines, Univ. of Warwick (UK); C. Forno, R. Hunt, S. Oldfield, National Physical Lab. (UK) 794
Traffic flow measurement by video image processing
T. Hashimoto, S. Murai, Univ. of Tokyo (Japan) 802
Digital object models of water surfaces
J. Peipe, Bundeswehr Univ. Munich (FRG); M. Stephani, Technical Univ. Munich (FRG) 809
Concept of an optical coordinate measurement machine
C.-T. Schneider, K. Sinnreich, AICON GmbH (FRG) 816

Instrumentation requirements for forensic analysis
G. Robertson, Gary Robertson & Associates, Inc. (Canada) 823

POSTER PAPERS

Use of photogrammetry in aviation equipment flight testing
K. Albakyan, Flight Research Institute (USSR) 830

Machine vision system for measurement of biological shapes
A. Alam Eldin, Univ. of Suez-Canal (Egypt); S. Lofty, Univ. of Mansoura (Egypt); K. Botros, F. Ibrahim, M. Elshahat, Univ. of Suez-Canal (Egypt) 837

Correction of image deformations using B-spline surfaces in digital close-range photogrammetry
K. Amdal, N. Thune, O. H. Dørum, Norwegian Institute of Technology (Norway) 845

Three-dimensional lower-limb bony-alignment model from precision radiographs
D. Anderson, H. G. Koch, J. U. Baumann, R. Brunner, Univ. of Basel (Switzerland) 855

Calculation of analytical elements in space using a contour algorithm
K. Andresen, R. Helsch, Technical Univ. Braunschweig (FRG) 863

Experiments on real-time raster photogrammetry
E. Baj, M. Rampolli, Univ. of Milan (Italy) 870

Image processing for determining joint parameters in difficult rock slope conditions
L. Baratin, Univ. di Venezia (Italy); F. Crosilla, P. Paronuzzi, Univ. di Udine (Italy) 878

3-D collocation filtering
R. Barzaghi, B. Crippa, Politecnico di Milano (Italy) 886

Reversed engineering of a product model
Y. J. Beliveau, S. Jayaram, S. D. Johnson, Virginia Polytechnic Institute and State Univ. (USA) 894

Optical measurement of vehicle body shapes in the wind tunnel
H. Bruhn, Volkswagen AG (FRG); C.-T. Schneider, AICON GmbH (FRG) 900

Sant'Ambrogio's Basilica in Milan: a study on photogrammetric surveys in the S. Vittore in Ciel d'Oro's dome
R. Brumana, Politecnico di Milano (Italy) 908

Pose determination of polyhedral objects from unconstrained 3-D edge points
H. Bunke, Institut für Informatik und angewandte Mathematik (Switzerland); H.-S. Lim, IBM Corp. (USA) 916

Digital stereo compilation on analytical plotter Digicart 40: principles of work, some results, and practical applications
G. Capanni, F. Flamigni, F. Argenti, Galileo Siscam SpA (Italy) 924

Automated relative-orientation modeling using feature matching
L.-C. Chen, L.-H. Lee, J.-S. Hsia, National Central Univ. (Taiwan) 932

Triangulation-based profiler
T. A. Clarke, N. E. Lindsey, City Univ. (UK) 940

Application of computer-assisted photogrammetry in the documentation of excavations and care of monuments in Egypt
G. Csáki, Institute of Geodesy, Cartography and Remote Sensing (Hungary) 948

Vectorization from aerial photographs applying the Hough transform method
I. da Silva, ETH Zurich (Switzerland) and EESC/USP (Brazil) 956

Study of the interpretation and location of the ruins of the ancient graves using remote-sensing technique
D. Song, S. Yao, Ministry of Coal Industry (China) 964

Radiometric noise in digitized photographs
H. Diehl, MBB GmbH (FRG) 974

(continued)

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Integration of ray-tracing algorithms into the analytical stereo plotting of multimedia images
G. Ditze, Univ. Bonn (FRG) 984

Studien zur photogrammetrischen und ultraschalltopometrischen vermessung der menschlichen rückenoberfläche *(English abstract at end of paper)*
H. Gäbel, G. Schumpe, Orthopädische Univ. (FRG) 992

Performance in close-range systems
J. W. C. Gates, Univ. College London (UK) 1001

Automated stereo measurements of short gravity-capillary waves
A. P. Gracian, Univ. College London and Institute of Oceanographic Sciences (UK); J. P. Muller, Univ. College London (UK); P. G. Challenor, M. A. Srokosz, Institute of Oceanographic Sciences (UK) 1008

Estimating approximate values before bundle adjustment in close-range photogrammetry: a review
I. Hådem, Univ. of Trondheim (Norway) 1016

CCD-camera calibration without a control field
Y. D. Huang, I. Harley, Univ. College London (UK) 1028

Comparing the image-matching methods of the two-stage and FFT
J.-T. Hwang, R.-G. Chang, Chung Cheng Institute of Technology (Taiwan) 1035

Measurement of the face's topography by digitally enhanced shadow moiré
A. Ivnitsky, A. S. Voloshin, Lehigh Univ. (USA) 1043

Image representation in hypercolumnar structure by means of associative memory
H. Janßen, J. Kopecz, H. Mallot, Ruhr-Univ. of Bochum (FRG) 1050

Digital close-range photogrammetry for surface measurement
W. Jeschke, Technische Univ. Berlin (FRG) 1058

PC-based moiré for field studies on the human body surface
H. Kurz, O. Leder, Albert-Ludwigs-Univ. (FRG) 1066

Application of hybrid coherent-optical techniques and devices for efficient image processing for nontopographic use in remote sensing
N. N. Mashnikov, V. V. Nekrasov, V. A. Stefanov, L. M. Tsiboulkin,
Research Institute of Automatic Systems (USSR) 1074

Möglichkeiten der bestimmung von näherungswerten für die oberflächenrekonstruktion mit FAST Vision *(English abstract)*
J. Müller, Technische Univ. Darmstadt (FRG) 1082

Interfacing quantitative computed tomography with finite element modeling
R. Müller, ETH Zurich and the Univ. of Zurich (Switzerland); B. Merz, Sulzer Medical Engineering Winterthur (Switzerland); P. Rüegsegger, ETH Zurich and Univ. of Zurich (Switzerland) 1092

Application of Monte Carlo analyses in terrestrial and close-range photogrammetry
H. N. Nagaraja, Univ. of Nairobi (Kenya) 1100

Anlagenüberwachung mit mitteln der photogrammetrie–anforderungen an komponenten numerische ergebnisse und graphische präsentation *(English abstract at end of paper)*
H.-J. Przybilla, RWE Energie AG (FRG) 1108

Reseau-scanning camera: conception and first measurement results
W. Riechmann, Technischen Univ. Braunschweig (FRG) 1117

Aircraft crash analysis utilizing a photogrammetric approach
G. Robertson, Gary Robertson & Associates, Inc. (Canada) 1126

Examples of human motion analysis performed with analytical and digital photogrammetric systems
H. Rüdenauer, B. Winck, Univ. Essen (FRG) 1134

Geological structure measurement in a CAD environment
H. Rüdenauer, Univ. Essen (FRG); G. Rafat, Deutsche Montan Technologie (FRG) 1142

CLOSE-RANGE PHOTOGRAMMETRY
MEETS MACHINE VISION

SPIE Volume 1395

Generalizing the aspect-graph concept to include articulated assemblies
M. Sallam, K. Bowyer, Univ. of South Florida (USA) 1150
Three-dimensional vision for robot control using novel stereoscopic sensors
P. Shuttleworth, M. Robinson, S. Godber, Nottingham Polytechnic (UK) 1157
Strata deformation and subsidence study by close-range photogrammetry
R. Singh, T. N. Singh, CMRS (India) 1164
Geometric three-dimensional model for vision artificial intelligence
R. Wang, Shanghai Institute of Technical Physics (China) 1171
Determination of the deformation of the bridge model in real time with CCD solid state camera
W. Li, G. Li, T. Xu, Tongji Univ. (China) 1181
Determining the real shape of hyperbolic cooling tower
J. Wozniak, Technical Univ. of Wroclaw (Poland) 1189
Algorithm for point positioning on digital images and in object space
J. Wu, J. H. Chang, National Central Univ. (Taiwan) 1196
Modified Markov random field model and its applications to texture synthesis and data compression
X. Yu, B. Yuan, Northern Jiaotong Univ. (China) 1203
Die anwendung von methoden der fernerkundung und luftphotogrammetrie in der archaeologischen prospektion *(English abstract at end of paper)*
R. Zantopp, Landschaftsverband Rheinland/Rheinisches Amt fuer Bodendenkmalpflege (FRG) 1210
Topography moiré using phase-stepping method with CCD camera
D. Zawieska, A. Spik, Warsaw Univ. of Technology (Poland) 1214
Computer-aided diagnoses of lung diseases through radiographs
F. Zhou, Univ. Hospital (Switzerland); L. J. He, Beijing Institute of Tumor Studies (China); X. Q. Wu, Northern Jiaotong Univ. (China) 1220
Object-points detection in a photogrammetric test field
H. B. Zhou, ETH Zurich (Switzerland) 1227
Update calibration of a photogrammetric station
I. Heikkila, Helsinki Univ. of Technology 1234
Author Index 1243