

Table of Contents

<i>Preface</i>	V
 INTRODUCTION	
Uwe Franke, Stefan Gehrig <i>How Cars Learned to See</i>	3
Jack Ickes <i>From Sensor to Information – The Evolution Continues</i>	11
Ralph D. Humberg <i>Connecting the Dots and Points in the Geospatial World</i>	17
Albrecht and Philipp Grimm <i>IGI – History – Present – Future</i>	23
Alexander Wiechert <i>UltraCam and UltraMap – An Update</i>	37
Stewart Walker <i>The Product Pipeline of BAE Systems for Photogrammetry and Remote Sensing</i>	45
Yaron Vilan, Adi Gozes <i>VisionMap Sensors and Processing Roadmap</i>	51
Konrad Wenzel, Mathias Rothermel, Norbert Haala, Dieter Fritsch <i>SURE – The ifp Software for Dense Image Matching</i>	59
 DATA COLLECTION FROM AIR, SPACE AND GROUND – AN UPDATE	
Dieter Fritsch, Mathias Rothermel <i>Oblique Image Data Processing – Potential, Experiences and Recommendations</i>	73
Ruediger Wagner, Peter Lieckfeldt, Rene Rothe, Jacques Markram <i>The Leica Geosystems CityMapper Solution</i>	89
Yuri Raizman, Adi Gozes <i>High Throughput Aerial Photography, Ortho & 3D Processing</i>	101
Michael Gruber, Wolfgang Walcher <i>Oblique Image Collection – Challenges and Solutions</i>	111
Michael Möllney, Jens Kremer <i>Contour Flying for Airborne Data Acquisition</i>	117

Peter Van Blyenburgh <i>RPAS – The European Approach & The Way Forward</i>	131
Werner Mayr <i>Unmanned Aerial Systems – for the Rest of Us</i>	151
Michael Cramer <i>The UAV@LGL BW Project – A NMCA Case Study</i>	165
Thomas Linkugel, Andreas Schilling <i>Another Step towards Measuring the World from the Air: Model-based 3D Real-time Simulation of Micro-UAV</i>	181
Uwe Soergel, Karsten Jacobsen, Lukas Schack <i>The TanDEM-X Mission: Data Collection and Deliverables</i>	193
Juha Hyypä, Anttoni Jaakkola, Yuwei Chen, Antero Kukko, Harri Kaartinen, Lingli Zhu, Petteri Alho, Hannu Hyypä <i>Unconventional LIDAR Mapping from Air, Terrestrial and Mobile</i>	205
ADVANCED METHODS OF COMPUTER VISION AND PHOTOGRAMMETRY	
Luc Van Gool, Anđelo Martinovic, Markus Mathias <i>Towards Semantic City Models</i>	217
Martin Schaich <i>Combined 3D Scanning and Photogrammetry Surveys with 3D Database Support for Archaeology & Cultural Heritage. A Practice Report on ArcTron’s Information System aSPECT^{3D}.</i>	233
Andreas Ullrich <i>Sampling the World in 3D by Airborne LIDAR – Assessing the Information Content of LIDAR Point Clouds</i>	247
Sebastian Carl, Samuel Bärish, Florian Lang, Pablo d’Angelo, Hossein Arefi, Peter Reinartz <i>Operational Generation of High Resolution Digital Surface Models from Commercial Tri-Stereo Satellite Data</i>	261
Norbert Haala <i>The Landscape of Dense Image Matching Algorithms</i>	271
Kirill Rotenberg, Louis Simard, Philippe Simard <i>Dense DSM Generation Using the GPU</i>	285

SOLVING THE FUTURE MAPPING PROBLEMS, ALL ABOUT 3D MODELLING**Daniel Thalmann***Towards Virtual Life in 3D Cities* 299**Martin Fellendorf***Digital Terrain Models for Road Design and Traffic Simulation* 309**Pedro Santos, Martin Ritz***CultLab3D – Fast and Economic, High Quality 3D Digitization of Cultural Heritage Artifacts* 319**Livio De Luca***3D Modelling and Semantic Enrichment in Cultural Heritage* 323**Marinos Ioannides***From Point Clouds to Triangular Meshes* 335**Stephen Lawler***3D Mapping and Photogrammetry* 343

List of Authors 347

Appendix: Synopsis of The Photogrammetric Weeks 351