



HCU

HafenCity University
Hamburg

LowCost 3D 2017

Sensors, Algorithms, Applications

Workshop Program

	TUESDAY, 28 NOVEMBER 2017	ROOM 3.008 (3 rd floor)
11:00-13:00	Registration	
13:00-13:10	Opening - Thomas P. Kersten (HafenCity University Hamburg)	
13:10-13:30	Session 1: Low-Cost Systems – Chair Thomas P. Kersten (HafenCity University Hamburg, Germany) M. Santise ^{1,2} , K. Thoeni ¹ , A. Giacomini ¹ , R. Roncella ² , S. G. Fityus ¹ , S. W. Sloan ¹ (¹ University of Newcastle, Australia & ² University of Parma, Italy) - PRELIMINARY TESTS OF A NEW LOW-COST PHOTOGRAMMETRIC SYSTEM	
13:30-13:50	S. Kossieris, O. Kourounioti, P. Agrafiotis, A. Georgopoulos (National Technical University of Athens, Greece) - DEVELOPING A LOW-COST SYSTEM FOR 3D DATA ACQUISITION	
13:50-14:10	D. Holdener, S. Nebiker, S. Blaser (FHNW Muttenz, Switzerland) - DESIGN AND IMPLEMENTATION OF A NOVEL PORTABLE 360° STEREO CAMERA SYSTEM WITH LOW-COST ACTION CAMERAS	
14:10-14:30	G. Pomaska (University of Applied Sciences Bielefeld, Germany) - 3D IMAGING APPLYING ACTION CAMS AND 360 DEGREE CAMERAS	
14:30-15:00	Coffee Break	
15:00-15:20	Session 2: Augmented & Virtual Reality – Chair Pierre Grussenmeyer (INSA Strasbourg, France) J. O. Wallgrün, J. Huang, J. Zhao, A. Masrur, D. Oprean, A. Klippel (The Pennsylvania State University, USA) - A FRAMEWORK FOR LOW-COST MULTI-PLATFORM VR AND AR SITE EXPERIENCES	
15:20-15:40	N. Pretto, F. Poiesi (FBK Trento, Italy) - TOWARDS GESTURE-BASED MULTI-USER INTERACTIONS IN COLLABORATIVE VIRTUAL ENVIRONMENTS	
15:40-16:00	S. Deggim, T. Kersten, F. Tschirschwitz (HCU Hamburg, Germany), N. Hinrichsen (Museum Old-Segeberg Town House, Germany) - SEGEBERG 1600 – RECONSTRUCTING A HISTORIC TOWN FOR VIRTUAL REALITY VISUALIZATION AS AN IMMERSIVE EXPERIENCE	
16:00-16:30	Coffee Break	
16:30-18:00	Demos & Poster Session – Chair Thomas P. Kersten (HafenCity University Hamburg, Germany) M. Bleier (Telematics Center, Würzburg, Germany), A. Nüchter (Julius Maximilian University of Würzburg, Germany) – SELF-CALIBRATING STRUCTURED LIGHT BASED 3D LINE LASER SCANNING S. Deggim, T. Kersten, F. Tschirschwitz (HCU Hamburg, Germany) – SEGEBERG 1600 – A HISTORIC TOWN IN VIRTUAL REALITY F. Poiesi, E. Nocerino, F. Remondino (FBK Trento, Italy) – 3D RECONSTRUCTION USING SMARTPHONES	
18:00-22:30	Icebreaker party in the HCU Café	

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WEDNESDAY, 29 NOVEMBER 2017		ROOM HS150 (1st floor)
08:00-08:30	Registration	
08:30-08:50	Session 3: Software – Chair Stephan Nebiker (FHNW Muttenz, Switzerland) M. Bassier, Mathias Bonduel, Maarten Vergauwen (KU Leuven, Ghent, Belgium) - Segmentation of large-scale point clouds using Octree-based region growing with CRF	
08:50-09:10	H. Houshiar, S. Winkler (DenkmalDaten Winkler KG, Münster, Germany) - POINTO - A LOW COST SOLUTION TO POINTCLOUD PROCESSING	
09:10-09:30	A. Masiero (University of Padova, Italy) - PHOTOGRAMMETRIC 3D RECONSTRUCTION IN MATLAB: DEVELOPMENT OF A FREE TOOL	
09:30-09:50	R. Ravanelli, L. Lastilla, M. Crespi (University of Rome, Italy) - 3D MODELLING BY LOW-COST RANGE CAMERA: SOFTWARE EVALUATION AND COMPARISON	
10:00-10:30	Coffee Break & Posters	
10:30-10:50	Session 4: Documentation & Reconstruction – Chair Fabio Remondino (FBK Trento, Italy) L. Barelli, P. Paolini (SAPIENZA, Roma, Italy), G. Forti (ESRI Italy) - THE XII CENTURY TOWERS, A BENCHMARK OF THE ROME COUNTRYSIDE ALMOST CANCELLED: THE SAFEGUARD PLAN BY LOW COST UAV AND TERRESTRIAL DSM PHOTOGRAMMETRY SURVEYING AND 3D WEB GIS APPLICATIONS	
10:50-11:10	N. Rehany, T. Lovas, Á. Barsi (Budapest University of Technology and Economics, Hungary) - CAPTURING FINE DETAILS INVOLVING LOW-COST SENSORS – A COMPARATIVE STUDY	
11:10-11:30	D. Abate, C. Sturdy-Colls (Staffordshire University, United Kingdom), I. Toschi, F. Remondino (FBK Trento, Italy) - A LOW-COST PANORAMIC CAMERA FOR THE DOCUMENTATION OF CONTAMINATED CRIME SCENES	
11:30-11:50	E. Nocerino ¹ , F. Poiesi ¹ , A. Locher ² , F. Remondino ¹ , P. Chippendale ¹ , L. Van Gool ² (¹ FBK Trento, Italy & ² ETH Zurich, Switzerland) - 3D RECONSTRUCTION WITH A COLLABORATIVE APPROACH BASED ON SMARTPHONES	
12:00-14:00	Lunch Break & Posters	
14:00-14:20	Session 5: Systems & Calibration – Chair Heinz-Jürgen Przybilla (Bochum Univ. of Appl. Sci., Germany) F. Menna, E. Nocerino, D. Morabito, M. Perini, F. Remondino (FBK Trento, Italy) - AN OPEN SOURCE LOW-COST AUTOMATIC SYSTEM FOR IMAGE-BASED 3D MASS DIGITIZATION	
14:20-14:40	A. Murtiyoso, P. Grussenmeyer (INSA Strasbourg, France), N. Börlin (Umeå University, Sweden) - REPROCESSING CLOSE RANGE TERRESTRIAL AND UAV PHOTOGRAMMETRIC PROJECTS WITH THE DBAT TOOLBOX FOR INDEPENDENT VERIFICATION AND QUALITY CONTROL	
14:40-15:00	J. Markiewicz, S. Łapiński, R. Bieńkowski, A. Kaliszewska (Warsaw University of Technology & Polish Academy of Sciences, Poland) - THE EXAMPLE OF USING THE XIAOMI CAMERAS IN INVENTORY OF MONUMENTAL OBJECTS - FIRST RESULTS	
15:00-15:20	M. Bleier (Telematics Center, Würzburg, Germany), A. Nüchter (Julius Maximilian University of Würzburg, Germany) - ROBUST SELF-CALIBRATION FOR HANDHELD 3D LINE LASER SCANNING	
15:30-16:00	Coffee Break & Posters	
16:00-16:20	Session 6: Mobile & Underwater Systems – Chair Andreas Georgopoulos (NTU Athens, Greece) F. Fissore, F. Pirotti, A. Vettore (University of Padova, Italy) - OPEN SOURCE WEB TOOL FOR TRACKING IN A LOW COST MMS	
16:20-16:40	S. Schmid (Daimler AG, Stuttgart, Germany), D. Fritsch (University Stuttgart, Germany) - A VARIANT OF LSD-SLAM CAPABLE OF PROCESSING HIGH-SPEED LOW-FRAMERATE MONOCULAR DATASETS	

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16:40-17:00	D. Calero (CTTC, Castelldefels, Spain) - AUTONOMOUS WHEELED ROBOT PLATFORM TESTBED FOR NAVIGATION AND MAPPING USING LOW-COST SENSORS
17:00-17:20	M. M. Nawaf, J.-M. Boi, D. Merad, J.-P. Royer, P. Drap (Aix-Marseille Université, France) - LOW COST EMBEDDED STEREO SYSTEM FOR UNDERWATER SURVEYS
17:20-17:30	Closing - Thomas P. Kersten (HafenCity University Hamburg)

Poster Presentations – Chair Felix Tschirschwitz (HafenCity University Hamburg, Germany)	
01	G. Blott (Robert Bosch GmbH, Hildesheim, Germany), C. Heipke (Leibniz University Hannover, Germany) - BIFOCAL STEREO FOR MULTIPATH PERSON RE-IDENTIFICATION
02	E. Angelats, J. A. Navarro (CTTC/CERCA, Castelldefels, Spain) - TOWARDS A FAST, LOW-COST INDOOR MAPPING AND POSITIONING SYSTEM FOR CIVIL PROTECTION AND EMERGENCY TEAMS
03	C. Morganti, C. Bartolomei (Alma Mater Studiorum University of Bologna, Italy) - DIGITAL DOCUMENTATION AND ARCHIVING LOW COST: LA HABANA VIEJA IN CUBA
04	D. Skarlatos, V. Vamvakousis (Cyprus University of Technology, Limassol, Cyprus) - LONG CORRIDOR SURVEY FOR HIGH VOLTAGE POWER LINES DESIGN USING UAV
05	M. Sarker (University of Sydney, Australia), T. A. Ali, A. Abdelfatah, S. Yehia (American University of Sharjah, UAE), A. Elaksher (California State Polytechnic University, Pomona, USA) & - A COST-EFFECTIVE METHOD FOR CRACK DETECTION AND MEASUREMENT ON CONCRETE SURFACES
06	C. Chen, X. Zou, M. Tian, J. Li, W. Wu, W. Dai, B. Yang (Wuhan University, PR China) - LOW COST MULTI-SENSORAL ROBOT LASER SCANNING SYSTEM AND ITS ACCURACY INVESTIGATIONS FOR INDOOR MAPPING APPLICATION
07	J. Li, B. Yang, W. Wu, W. Dai, C. Chen, X. Zou, M. Tian (Wuhan University, PR China) - 3D MOBILE MAPPING WITH A LOW COST UAV SYSTEM
08	R. Ravanelli, F. Capocchiano, M. Crespi (University of Rome “La Sapienza”, Italy) - A TOOL FOR CROWDSOURCED BUILDING INFORMATION MODELING THROUGH LOW-COST RANGE CAMERA: PRELIMINARY DEMONSTRATION AND POTENTIAL
09	C. Palestini, A. Basso (University “G. D’Annunzio”, Pescara, Italy) - THE PHOTOGRAMMETRIC SURVEY METHODOLOGIES APPLIED TO LOW COST 3D VIRTUAL EXPLORATION IN MULTIDISCIPLINARY FIELD
10	M. Bonduel, M. Bassier, M. Vergauwen, P. Pauwels, R. Klein (KU Leuven & Ghent University, Belgium) - SCAN-TO-BIM OUTPUT VALIDATION: TOWARDS A STANDARDIZED GEOMETRIC QUALITY ASSESSMENT
11	F. Fissore, A. Guarnieri, A. Vettore (University of Padova, Italy) - DIGITAL MODEL OF WALLS OF PADUA LOW RELIEF
12	A. Masiero, F. Fissore, A. Guarnieri, M. Piragnolo, A. Vettore (University of Padova, Italy) - COMPARISON OF LOW COST PHOTOGRAMMETRIC SURVEY WITH TLS AND LEICA PEGASUS BACKPACK 3D MODELS
13	J. Caha (Mendel University Brno, Czech Republic), M. Kačmařík (VŠB-TU Ostrava, Czech Republic) - UTILIZATION OF LARGE SCALE SURFACE MODELS FOR DETAILED VISIBILITY ANALYSIS
14	M. Vavulin (Tomsk State University, Russia) - DOCUMENTATION OF OLD TURKIC RUNIC INSCRIPTIONS OF THE ALTAI MOUNTAINS USING PHOTOGRAMMETRIC TECHNOLOGY
15	A. Calantropio, E. Colucci, L. Teppati Losè (Politecnico di Torino, Italy) - RAPID MAPPING FOR BUILT HERITAGE AT RISK USING LOW-COST AND COTS SENSORS. A TEST IN THE DUOMO VECCHIO OF SAN SEVERINO MARCHE
16	M. M. Bocconcino ¹ , V. Donato ¹ , C. Santagati ² , M. Lo Turco ¹ (¹ Politecnico di Torino & ² Università di Catania, Italy) - 3D MODELS FOR ALL: LOW-COST ACQUISITION VIA MOBILE DEVICES IN COMPARISON WITH IMAGE BASED TECHNIQUES. POTENTIALITIES AND WEAKNESSES IN CULTURAL HERITAGE DOMAIN