

4th International Workshop 3D-ARCH 2011
“3D Virtual Reconstruction and Visualization of Complex Architectures”
2-4 March 2011, Trento, Italy

WEDNESDAY 2 MARCH

CARITRO building, via Calepina 1, Trento

- 8:00-9:00 REGISTRATION
- 9:00-9:15 OPENING
- 9:15-10:00 Invited talk
 ROOM A **Beyond automation - Precise and detailed 3D modeling using photogrammetry and terrestrial laser scanning** - Thomas Kersten, HafenCity University Hamburg, Germany
- 10:00-11:00 **Technical Session 1 - 3D GIS and BIM** – Chair: Fabio Remondino
 ROOM A
- HISTORIC BUILDING INFORMATION MODELLING - ADDING INTELLIGENCE TO LASER AND IMAGE BASED SURVEYS
M. Murphy, E. McGovern, S. Pavia
 - THE ARCHITECTURAL INFORMATION SYSTEM SIARCH3D-UNIVAQ FOR ANALYSIS AND PRESERVATION OF ARCHITECTURAL HERITAGE
M. Centofanti, R. Continenza, S. Brusaporci, I. Trizio
 - ARCRANGE AND ARCSEER: PRESENTING A NEW APPROACH TO ARCHAEOLOGICAL DATA MANAGEMENT AND REPRESENTATION
F. Lynam
- 11:00-11:30 **COFFEE break & POSTERS**
- 11:30-13:00 **Technical Session – Digital Heritage Site** – Chair: Sabry El-Hakim
 ROOM A
- DIGITAL REBIRTH OF THE GREATEST CHURCH OF CLUNY MAIOR ECCLESIA: FROM OPTRONIC SURVEYS TO REAL TIME USE OF THE DIGITAL MODEL
J. Landrieu, C. Pèrè, J. Rollier, S. Castandet, G. Schotte
 - 3D DOCUMENTATION OF GLOBAL HISTORIC SITES: THE ‘SCOTTISH TEN’ PROJECT AND ITS APPLICATIONS FOR CULTURAL HERITAGE
L. Wilson, A. Rawlinson, D.S. Mitchell, D.K. Pritchard, H.C. McGregor
 - 3D VIRTUAL ANASTYLOSIS AND RECONSTRUCTION OF SOME BUILDINGS IN THE SITE OF SAINT-SIMEON, SYRIA
M. Kurdy, J-L. Biscop, L. De Luca, M. Florenzano
 - THE COMPLETE VIRTUAL 3D RECONSTRUCTION OF THE EAST PEDIMENT OF THE TEMPLE OF ZEUS AT OLYMPIA
A. Patay-Horváth
- 11:30-13:00 **Technical Session – Image-based 3D modeling** – Chair: Gianfranco Forlani
 ROOM B
- DIGITAL RECONSTRUCTION OF THE CHURCH OF SAN ILDEFONSO AT ZAMORA (SPAIN) USING ORTHOWARE
A. Pérez, R. Cachero, S. Navarro, F. Jordá, D. López, J.L. Lerma, A. Martos
 - 360° FILM BRINGS BOMBED CHURCH TO LIFE
K. Kwiatek
 - HIGH AND LOW RESOLUTION TEXTURED MODELS OF COMPLEX ARCHITECTURAL SURFACES
E. K. Stathopoulou, A. Valanis, J. L. Lerma, A. Georgopoulos
 - AN IMAGE-BASED MODELING EXPERIENCE ABOUT SOCIAL FACILITIES, BUILT DURING THE FASCIST PERIOD IN MIDDLE ITALY
D. Rossi
- 13:00-14:30 **LUNCH break & POSTERS**
- 14:30-16:00 **Technical Session – 3D Modeling with integrated techniques** – Chair: Thomas Kersten
 ROOM A
- 3D SURVEY OF THE SAN CARLO THEATRE IN NAPLES
V. Cappellini, M. Campi

- GIS-BASED SURFACE ANALYSIS OF ARCHAEOLOGICAL FINDS
K. Kovács, K. Hanke, M. Moser
- INTEGRATED STRATEGIES FOR THE MODELING VERY LARGE AND COMPLEX ARCHITECTURES
F. Fassi, C. Achille, F. Gaudio, L. Fregonese
- RECONSTRUCTING CCTV, BEIJING
V. Forcella, L. Mussio
- METRIC SURVEY OF THE MONUMENT OF QUEEN ELISENDA'S TOMB IN THE MONASTERY OF PEDRALBES, BARCELONA
M. A. Núñez, F. Buill, J. Regot, A. Mesa

14:30-16:00 **Technical Session – 3D Modeling, Visualization, Analyses and Simulation** – Chair: Giorgio Agugiaro

ROOM B

- 3D WEBGIS AND VISUALIZATION ISSUES FOR ARCHITECTURES AND LARGE SITES
R. De Amicis , R. Conti, G. Girardi, M. Andreolli
- POINT CLOUD VISUALIZATION IN AN OPEN SOURCE 3D GLOBE
M. De La Calle, D. Gómez-Deck, O. Koehler, F. Pulido
- ARCHITECTURAL LARGE CONSTRUCTED ENVIRONMENT. MODELING AND INTERACTION USING DYNAMIC SIMULATIONS
P. Fiamma
- VARIANCE ANALYSIS AND COMPARISON IN COMPUTER-AIDED DESIGN
T. Ullrich, T. Schiffer, C. Schinko, D. W. Fellner
- SPACE MOVING OBJECTS SPATIO-TEMPORAL MODELING AND VISUALIZATION
X. Qing, Z. Yang, Z. Baoming, L. ChaoZhen

16:00-16:30 **COFFEE break & POSTERS**

16:30-16:50 **Company presentation**

ROOM A

- A METHODOLOGY FOR 3D DATA ACQUISITION AND PROCESSING
Leica Geosystems

16:50-18:30 **Special Session – Procedural modelling** – Chair: Christoph Schinko

ROOM A

- DEVELOPING PARAMETRIC BUILDING MODELS – THE GANDIS USE CASE
W. Thaller, U. Krispel, S. Havemann , I. Redi, A. Redi, D. W. Fellner
- AUTOMATIC ARCHITECTURAL STYLE RECOGNITION
M. Mathias, A. Martinovic, J. Weissenberg, S. Haegler, L. Van Gool
- REALTIME COMPOSITING OF PROCEDURAL FACADE TEXTURES ON THE GPU
L. Krecklau and L. Kobbelt
- GENERATING ALTERNATIVE PROPOSALS FOR THE LOUVRE USING PROCEDURAL MODELING
E. Calogero, D. Arnold

19:30

WELCOME Party @ Underground Roman City, Trento

Posters:

- CONSTRUCTION OF A GEOGRAPHICAL DATABASE OF CLASSICAL-ARCHAIC MANUFACTURES, FOUND IN THE SURVEY OF THE GREEK COLONY HIMERA (SICILY, ITALY). APPLICATION AND METHODOLOGIES FOR AN EXPERIMENTAL RESEARCH
M.A. Papa, V. Tardo
- NOVIODUNUM ROMAN FORTRESS. A SURVEY ON A CITY WALL SECTION
A. Teodor, E. S. Teodor, M. S. Florea, M. A. Popescu
- PROCEDURES AND METHODS OF DIGITAL MODELING IN REPRESENTATION DIDACTICS
M. La Mantia
- IMAGE-BASED AND RANGE-BASED 3D MODELLING OF ARCHAEOLOGICAL CULTURAL HERITAGE: THE TELAMON OF THE TEMPLE OF OLYMPIAN ZEUS IN AGRIGENTO (ITALY)
M. Lo Brutto, M.G. Spera
- SURVEY PROBLEMS AND REPRESENTATION OF ARCHITECTURAL PAINTED SURFACES
M. Carpiceci
- 3D SURVEY OF THE EARLY-MIDDLE BRONZE AGE WORKSHOP COMPLEX AND CEMETERY AREA AT ERIMI-LAONIN TOU PORAKOU
G. Tucci, L. Bombardieri, A. Conti, L. Fiorini
- 3D VIRTUAL RECONSTRUCTIONS OF MINOAN RURAL SITES: THE CASE OF LIVARI CHEROMYLIA
T. Alusik, M. Chalupka, D. Kopernicky

- THE USE OF 3D MODELS IN INTEGRATE SURVEY: THE CHURCH OF ST. THOMAS OF VILLANOVA IN CASTEL GANDOLFO
M. Canciani, M. Saccone

THURSDAY 3 MARCH

MTSN building via Calepina 14, Trento	8:00-9:00	REGISTRATION
	9:00-9:45	<u>Invited talk</u>
	ROOM A	High-resolution large-scale multi-view stereo - Jean-Philippe Pons (ACUTE3D, France)
	9:45-10:30	<u>Technical Session - 3D GIS and BIM</u> – Chair: Sabry El-Hakim
ROOM A	<ul style="list-style-type: none"> • A WEB-BASED INTERACTIVE TOOL FOR MULTI-RESOLUTION 3D MODELS OF A MAYA ARCHAEOLOGICAL SITE G. Agugiaro, F. Remondino, G. Girardi, J. Von Schwerin, H. Richards-Rissetto, R. De Amicis • BUILDING INFORMATION MODELLING FOR 3D HERTIAGE DOCUMENTATION S. Fai, R. Attar 	
10:30-11:00	COFFEE break & POSTERS	
11:00-13:00	<u>Technical Session – Range-based 3D modeling</u> – Chair: Marco Scaioni	
ROOM A	<ul style="list-style-type: none"> • A RANGE BASED METHOD FOR COMPLEX FACADE MODELING A. Adami, L. Fregonese, L. Taffurelli • VIRTUAL RECONSTRUCTION OF THE ALMAQAH TEMPLE OF YEHA IN ETHIOPIA BY TERRESTRIAL LASER SCANNING M. Lindstaedt, K. Mechelke, M. Schnelle, Th. Kersten • PROCESSING A COMPLEX ARCHITECTURAL SAMPLING WITH MESHLAB: THE CASE OF PIAZZA DELLA SIGNORIA M. Callieri, P. Cignoni, M. Dellepiane, G. Ranzuglia, R. Scopigno • AN APPLICATION FOR CULTURAL HERITAGE IN ERASMUS PLACEMENT. SURVEYS AND 3D CATALOGING ARCHAEOLOGICAL FINDS IN MÉRIDA (SPAIN) S. Barba, F. Fiorillo, P. Ortiz Coder, S. D’Auria, E. De Feo • LYNX MOBILE MAPPER FOR SURVEYING CITY CENTERS AND HIGHWAYS D. Conforti, F. Zampa 	
11:00-13:00	<u>Technical Session – 3D Modeling with integrated techniques</u> – Chair: Livio De Luca	
ROOM B	<ul style="list-style-type: none"> • USING TERRESTRIAL LASER SCANNING AND LIDAR DATA FOR PHOTO-REALISTIC VISUALISATION OF CLIMATE IMPACTS AT HERITAGE SITES A. Nettley, K. Anderson, C. DeSilvey, C. Caseldine • AN APPROACH TOWARDS THE CONSTRUCTION OF A DIGITAL ATLAS FOR THE DOCUMENTATION OF CLOISTER AND COURTYARDS IN ASCOLI PICENO E. Ippoliti, D. Rossi, A. Meschini, A. Moscati • RECONSTRUCTION OF 3D VECTOR MODELS OF BUILDINGS BY COMBINATION OF ALS, TLS AND VLS DATA H. Boulaassal, T. Landes, P. Grussenmeyer • REVERSE ENGINEERING AND 3D MODELLING FOR DIGITAL DOCUMENTATION OF MARITIME HERITAGE F. Menna, E. Nocerino, A. Scamardella • MEASURED MODEL, THEORETICAL MODEL AND REPRESENTED MODEL: THE SO-CALLED ARCH OF DRUSUS IN ROME M. Canciani, D. Maestri, G. Spadafora, D. Manacorda, V. Di Cola 	
13:00-14:30	LUNCH break & POSTERS	
14:30-16:30	<u>Special Session – Automated orientation of image sequences</u> – Chair: Fabio Remondino	
ROOM A	<ul style="list-style-type: none"> • AUTOMATIC CAMERA ORIENTATION AND STRUCTURE RECOVERY WITH SAMANTHA R. Gherardi, R. Toldo, V. Garro, A. Fusiello • APERO, AN OPEN SOURCE BUNDLE ADJUSMENT SOFTWARE FOR AUTOMATIC CALIBRATION AND ORIENTATION OF SET OF IMAGES M. Pierrot Deseilligny, I. Clery • AUTOMATED AND ACCURATE ORIENTATION OF COMPLEX IMAGE SEQUENCES L. Barazzetti, F. Remondino, M. Scaioni 	
CARITRO building, via Calepina 1, Trento		
MTSN building via Calepina 14, Trento		

- PERFORMANCE EVALUATION OF A STRUCTURE AND MOTION STRATEGY IN ARCHITECTURE AND CULTURAL HERITAGE
R. Roncella, C. Re, G. Forlani
- AUTOMATIC ORIENTATION OF IMAGE SEQUENCES IN CULTURAL HERITAGE
S. Del Pizzo, S. Troisi

17:15 **EXCURSION** – Buonconsiglio Castle, Trento

19:30 **SOCIAL Dinner** – Orso Grigio restaurant, Trento

FRIDAY 4 MARCH

- 9:00-9:45 Invited talk
ROOM A **A semantic based approach for the digital analysis of architectural heritage** - Livio de Luca (MAP-Gamsau CNRS, Marseille, France)
- 9:45-11:00 **Technical Session – 3D Modeling in Trentino** – Chair: Fabio Remondino
ROOM A
- 3D RECORDING FOR 2D DELIVERING - THE EMPLOYMENT OF 3D MODELS FOR STUDIES AND ANALYSES
A. Rizzi, G. Baratti, B. Jimenez, S. Girardi
 - MULTISCALE INTERACTIVE COMMUNICATION: INSIDE AND OUTSIDE THUN CASTLE
G.A. Massari, F. Luce, C. Pellegatta
 - SURVEY, REPRESENTATION AND ANALYSIS OF A WAR I COMPLEX SYSTEM OF SURFACE AND UNDERGROUND FORTIFICATIONS IN THE GRESTA VALLEY – ITALY
I. Salvador, A. Vitti
 - MIC: MY IDEAL CITY
M. Borgherini, E. Garbin
- 11:00-11:30 **COFFEE break & POSTERS**
- 11:30-13:00 **Technical Session – Sensors, Algorithms and Comparisons** – Chair: Armin Gruen
ROOM A
- TARGETLESS CAMERA CALIBRATION
L. Barazzetti, L. Mussio, F. Remondino, M. Scaioni
 - COMPARISON OF TWO STRUCTURE AND MOTION STRATEGIES
R. Roncella, C. Re, G. Forlani
 - AUTOMATIC POINT CLOUD GENERATION AND REGISTRATION WITH A STEREOVISION SLIT-SCANNER
A. Prokos, I. Kalisperakis, G. Karras
 - A COMPARISON BETWEEN ACTIVE AND PASSIVE TECHNIQUES FOR UNDERWATER 3D APPLICATIONS
G. Bianco, A. Gallo, F. Bruno, M. Muzzupappa
- 11:30-13:00 **Technical Session – Range-based 3D modeling** – Chair: Andreas Georgopoulos
ROOM B
- LASER SCANNING OF A MONOLITHIC COLUMN DURING PROCESSING IN MIDDLE EGYPT
O.Ajioka, Y.Hori
 - DIACHRONIC 3D RECONSTRUCTION FOR LOST CULTURAL HERITAGE
G. Guidi, M. Russo
 - COMPARING TIME-OF-FLIGHT AND PHASE-SHIFT. THE SURVEY OF THE ROYAL PANTHEON IN THE BASILICA OF SAN ISIDORO (LEÓN)
J.I. San José Alonso, J. Martínez Rubio, J.J. Fernández Martín, J. García Fernández
 - EVALUATING PARAMETERS AFFECTING THE GEOREFERENCING ACCURACY OF TERRESTRIAL LASER SCANNERS
M. Miri, M. Varshosaz
- 13:00-14:30 **LUNCH break & POSTERS**
- 14:30-16:00 **Technical Session – Image-based 3D modeling** – Chair: Jean-Philippe Pons
ROOM A
- PROJECT PHOTOFly: NEW 3D MODELING ONLINE WEB SERVICE (CASE STUDIES AND ASSESSMENTS)
D. Abate, G. Furini, S. Migliori, S. Pierattini
 - AN IMAGE-BASED APPROACH FOR THE ARCHITECTURAL MODELING OF PAST STATES
C. Stefani, C. Busayarat, N. Renaudin, L. De Luca, P.Véron, M. Florenzano
 - THREE-DIMENSIONAL DATA AND THE RECORDING OF MATERIAL STRUCTURE

	R. Parenti, P. Gilento, F. Ceccaroni
	<ul style="list-style-type: none"> UAV PHOTOGRAMMETRY - PLATFORMS, DATA PROCESSING AND APPLICATIONS A. Gruen
14:30-16:00 ROOM B	<p><u>Technical Session – 3D for Virtual Museums, Conservation and Communication</u> – Chair: Gabriele Guidi</p> <ul style="list-style-type: none"> EFFECTIVE 3D DIGITIZATION OF ARCHAEOLOGICAL ARTIFACTS FOR INTERACTIVE VIRTUAL MUSEUM G. Tucci, D. Cini, A. Nobile VIRTUAL MUSEUM APPLICATIONS AND THEIR PUBLIC PERCEPTION IN BOSNIA AND HERZEGOVINA S. Rizvic, A. Sadzak, B. Ramic-Brkic, V. Hulusic VIRTUAL EXHIBITION AND FRUITION OF ARCHAEOLOGICAL FINDS A.M. Manferdini, S. Garagnani FROM THE CONTINUOUS TO THE DISCRETE MODEL: A LASER SCANNING APPLICATION TO CONSERVATION PROJECTS A. Cardaci, G.M. Roberti, A. Versaci URBAN ARCHAEOLOGY: HOW TO COMMUNICATE A STORY OF A SITE, 3D VIRTUAL RECONSTRUCTION BUT NOT ONLY M. Capone
16:00-16:30	COFFEE break & POSTERS
16:30-18:00 ROOM A	<p><u>Special Session – Interactive online 3D models</u> – Chair: Sofia Pescarin</p> <ul style="list-style-type: none"> INTERACTIVE 3D LANDSCAPES ON LINE B. Fanini, L. Calori, D. Ferdani, S. Pescarin VIRTUAL PRESENCE AND THE MIND'S EYE IN 3-D ONLINE COMMUNITIES R. C. Beacham, H. Denard, D. Baker SPIDERGL: A GRAPHICS LIBRARY FOR 3D WEB APPLICATIONS M. Di Benedetto, M. Corsini, R. Scopigno X3DOM AS CARRIER OF THE VIRTUAL HERITAGE Y. Jung, J. Behr, H. Graf EUROPEANA AND 3D D. Pletinckx
18:00	CLOSING SESSION

Posters:

- NEW INSTRUMENTS FOR SURVEY: ON LINE SOFTWARES FOR 3D RECONSTRUCTION FROM IMAGES
E. Fratus de Balestrini, F. Guerra
- FROM CAD TO DIGITAL MODELING: THE NECESSARY HYBRIDIZATION OF PROCESSES
G.A. Massari, F. Bernardi, A. Cristofolini
- "MATERA CITTÀ NARRATA" PROJECT: AN INTEGRATED GUIDE FOR MOBILE SYSTEMS
E. Pietroni, S. Borghini, R. Carlani, C. Rufa
- 3D MODELS FOR THE RESTORATION PROJECT: SOME ISSUES AND A CASE STUDY
G. Novello, E. Marchis
- FROM REAL TO... "REAL". A REVIEW OF GEOMATIC AND RAPID PROTOTYPING TECHNIQUES FOR SOLID MODELLING IN CULTURAL HERITAGE FIELD
G. Tucci, V. Bonora
- 3D VIRTUAL RECONSTRUCTION OF AN URBAN HISTORICAL SPACE: A CONSIDERATION ON THE METHOD
M. Galizia, C. Santagati
- ARCHITECTURAL HISTORICAL HERITAGE: A TRIDIMENSIONAL MULTILAYERS CATALOGUING METHOD
D. Calisi, A. Tommasetti, R. Topputo
- THE STUDY ON HEIGHT INFORMATION EXTRACTION OF CULTURAL FEATURES IN REMOTE SENSING IMAGES BASED ON SHADOW AREAS
Zhang Bao-ming, Guo Hai-tao, Lu Jun, Liu Zhi-qing, He Hong