

**The 5th International Symposium
on
Mobile Mapping Technology**

MMT'07

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P R O G R A M M E

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Welcome to MMT'07

The International Symposium on Mobile Mapping Technology (MMT) is the premier event being organized jointly by the ISPRS, FIG, and IAG. MMT offers a great forum for research and development in mobile mapping technology systems and applications. the advancement of Mobile Mapping technology has attributed to many aspects in Geomatics. This symposium will reflect the core spectrum of the latest developments in mobile mapping technology, ranging from the algorithm research to the system development, from land-based to airborne systems, from direct georeferencing to sensor integration, from mobile data collection do dynamic GIS management.

The MMT'07 will take place in Padua, Italy. Padua has always been considered a university-city as it hosts the second oldest University in Europe (1222). It is world famous for its schools of Medicine (anatomy), Law, Mathematics and Physics. Nicolaus Copernicus was among the scholars of the University, and Galileo Galilei taught here from 1592 to 1610. the city has always been a hub in collaboration with other universities around the world and a center of excellence for many projects. Historically the city is very interesting as a lot of areas are of historical interest and make tourists spend a lot of pleasurable hours visiting and strolling around the town.

We expect a wonderful event and are looking forward to seeing you in Padua.

Convenors:

Dr. Antonio Vettore, University of Padua – antonio.vettore@unipd.it

Dr. Naser El-Sheimy, University of Calgary – elsheimy@ucalgary.ca

Committees

Local organizers:

CIRGEO - Interdepartment Research Center for Geomatics – University of Padua

Convenors :

Dr. Antonio Vettore, University of Padua - antonio.vettore@unipd.it
Dr. Naser El-Sheimy, University of Calgary - elsheimy@ucalgary.ca

Organizing Committee :

Publication Chair: Alberto Guarneri
(CIRGEO – University of Padua)

Exhibit Chair: Francesco Pirotti
(CIRGEO – University of Padua)

Finals and registration Chair: Serena Galzignato, Caterina Sigolo
(University of Padua)

Scientific Committee:

Chair:

Naser El-Sheimy (University of Calgary, Canada)

Co-Chairs:

Ron Li (USA), Dorothea Brzezinska (USA), Vincent Tao (Canada), Charles Toth (USA), Marinos Kavouras (Greece)

Members:

Chris Rizos (Australia)
Rudolf Staiger (Germany)
Alain Baudoin (France)
Jan Skaloud (Switzerland)
Armin Gruen (Switzerland)
Ayman Habib (Canada)
Clive Fraser (Australia)
Costas Armenakis (Canada)
Deren Li (China)
Fabio Crosilla (Italy)
Giorgio Manzoni (Italy)
Hans-Gerd Maas (Germany)
Heribert Kahmen (Austria)
Mohamed Mostafa (Canada)
Jonathan Li, (Canada)

Maurizio Barbarella (Italy)
Matt Higgins (Australia)
Mike Chapman (Canada)
Nickolas Paparoditis (France)
Petro Patias (Greece)
Robert Haala (Germany)
Ruggero Frezza (Italy)
Ryosuke Shibasaki (Japan)
Thomas Wuenderlich (Austria)
Yang Gao (Canada)
Ferdinando Sansò (Italy)
Jinling Wang (Australia)
Ismael Colomina (Spain)
Krzysztof Gajdamowicz (Sweden)

Tutorial TimeTable

Monday 28th May – Mobile Mapping Systems Tutorial

Location - Archivio Antico

8:25 **Welcome Speech**

8:30 *Director of CIRGEO*

08:30 **T1 - 1st part Overview of Digital Mobile Mapping Systems**

10:00 *Dr. Naser El-Sheimy - the University of Calgary Canada*

Coffee Break

10:30 **T1 - 2nd part Overview of Digital Mobile Mapping Systems**

11:30 *Dr. Naser El-Sheimy - the University of Calgary Canada*

11:30
13:00 Lunch break

13:00 **T2 - an Overview of Airborne Digital Mapping Systems and Quality Control of Large Mapping Projects**

15:00 *Dr. Mohamed M.R. Mostafa, Applanix Corp, Canada*

Coffee Break

15:30 **T3 - Airborne Laser Altimetry: DEM Production and Automatic Feature Extraction**

17:30 *Dr. Charles Toth and Drs. Dorota Grejner-Brzezinska
Ohio State University*

Symposium TimeTable

| Tuesday 29 th May | |
|------------------------------|---|
| 07:30 | Registration |
| 9:00 | Opening Ceremony Welcome Speech - Chair of MMT2007 – Dr. Naser El-Sheimy - Prof. Vincenzo Milanese - Rector of the University of Padua - Prof. Raffaele Cavalli Dean Faculty of Agriculture - Dr. Orhan Altan (ISPRS) - Dr. Rudolf Staiger (FIG) - Dr. Chris Rizos (IAG) |
| 09:30 | (Location - Aula Magna) |
| 09:30 | Keynote Speeches (Location - Aula Magna) - Mobile Mapping with UAV Technology - <i>Prof. Armin Gruen - ETH</i> - GNSS and Digital Maps, Symbiosis or Both Sides of the Same Medal? - <i>Mr. Lionel Garin, NemerIX</i> |
| 11:00 | Coffee Break |
| 11:15 | Keynote Speech (Location - Aula Magna) - Terrestrial Mapping for a Mobile World - <i>Mr. Eric DesRoche Intermap Technologies</i> |
| 12:00 | Lunch break |
| 13:30 | Oral session - <i>Automatic Feature Extraction from MMT Images</i> (Location - Aula Magna) |
| 15:00 | Oral session - <i>LiDAR and SAR mapping systems</i> (Location - Aula Nieveo) |
| | Coffee Break |
| 15:15 | Oral session - <i>Mobile Mapping applications</i> (Location - Aula Magna) |
| 17:15 | Oral session - <i>Estimation and optimization algorithms</i> (Location - Aula Nieveo) |
| 17:30 | WELCOME PARTY (Location - Basilica) |

Wednesday 30th May

| | Location - Aula Nievo | Location - Archivio Antico |
|-------|--|---|
| 09:00 | Oral session - <i>Direct Georeferencing</i> - <i>Mobile Mapping applications</i> | Oral session - <i>GNSS</i> - <i>Automated and semi-automated image segmentation and object Extraction/recognition</i> |
| 10:30 | (Location - Aula Nievo) | (Location - Archivio Antico) |
| | Coffee Break | |
| 10:45 | Oral session - <i>GNSS</i> | Oral session - <i>Image sequence processing</i> |
| 12:45 | (Location - Aula Nievo) | (Location - Archivio Antico) |
| 12:45 | Lunch break | |
| 14:00 | Oral session - <i>Mobile Mapping applications</i> | Oral session - <i>LiDAR and SAR mapping systems</i> |
| 16:00 | (Location - Aula Nievo) | (Location - Archivio Antico) |
| | Coffee Break | |
| 16:15 | Keynote Speech (Location - Aula Nievo) Opportunities and Challenges in Mobile Mapping for On-line Services and Consumer Applications: A Perspective from Microsoft Virtual Earth - <i>Prof. Vincent Tao, Microsoft Virtual Earth</i> | |
| 17:00 | | |
| 17:15 | Poster Session | |
| 19:15 | (Location - Aula Nievo) | |
| 20:00 | GALA DINNER | |

| Thursday 31 st May | |
|---|---|
| Location - Aula Nievo | Location - Archivio Antico |
| 09:00 Oral session - <i>Mobile Mapping Technology - components, platforms, etc.</i> (Location - Aula Nievo) | 09:00 Oral session - <i>Estimation and optimization algorithms</i> (Location - Archivio Antico) |
| Coffee Break | |
| 10:45 Oral session - <i>Mobile Mapping Technology - components, platforms, etc.</i> - <i>Automated and semi-automated image segmentation and object Extraction/recognition</i> (Location - Aula Nievo) | 10:45 Oral session <i>Wireless positioning techniques</i> (Location - Archivio Antico) |
| 12:45 Lunch break | |
| 14:00 Oral session - <i>3D Mobile Mapping and GIS integration</i> (Location - Aula Nievo) | 14:00 Oral session - <i>Estimation and optimization algorithms</i> (Location - Archivio Antico) |
| Coffee Break | |
| 15:45 Oral session - <i>3D Mobile Mapping and GIS integration</i> (Location - Aula Nievo) | 15:45 Oral session - <i>Sensor calibration - orientation, integration, reliability</i> (Location - Archivio Antico) |
| 18:00 CLOSING CEREMONY | |

Mobile Mapping Systems Tutorial

Introduction

Mobile Mapping Systems (MMS), the methodology that integrates digital mapping sensors with direct geo-referencing, has developed rapidly over the past fifteen years. What used to be a topic of academic study has become a commercially viable industry. The tutorial aims at familiarizing young scientists and potential users with mobile mapping technologies in an intensive course by a group of internationally highly recognized researchers and experts, industry developers, and users.

The program is designed to present the key elements of mobile mapping, starting from its theoretical background, through navigation and imaging sensors mounted on a moving platform, via data handling by geographical information systems, to automated feature extraction. The material introduced in the tutorial will be emphasized by real-life examples of DMM Systems in land, air, marine, and underground systems.

Intended Audience: the tutorial is aimed at students, practitioners, engineers and managers who are new to the field of mobile mapping. The material will be presented in such a way that requires minimal technical background.

Topics and Authors:

Overview of Digital Mobile Mapping Systems

Dr. Naser El-Sheimy - the University of Calgary Canada

Overview of Airborne Digital Mapping Systems and Quality Control of Large Mapping Projects

Dr. Mohamed M.R. Mostafa, Applanix Corp, Canada

Airborne Laser Altimetry: DEM Production and Automatic Feature Extraction

Dr. Charles Toth and Drs. Dorota Grejner-Brzezinska, Ohio State University

Location and Fees

The Mobile Mapping Summer School will be held in Archivio Antico Room at Palazzo Bo (conference location). Fee for the summer school is only 100 euro and is not included with conference fee. Please sign up as soon as possible as there is a limited number of participants.

Conference Program

Tuesday May 29

7:30 – 9:00

Participant Registration

Location - Registration Desk

9:00 – 9:30

Opening Ceremony

Location - Aula Magna

- Chair of MMT2007 – Dr. Naser El-Sheimy
- Prof. Vincenzo Milanesi - Rector of the University of Padua
- Prof. Raffaele Cavalli – Dean of the Faculty of Agriculture
- Dr. Orhan Altan (ISPRS)
- Dr. Rudolf Staiger (FIG)
- Dr. Chris Rizos (IAG)

9:30 – 11:00

Keynote Speeches

Location - Aula Magna

Mobile Mapping with UAV Technology

Prof. Armin Gruen – ETH Zurich

GNSS and Digital Maps, Symbiosis or Both Sides of the Same Medal?

Mr. Lionel Garin – CTO, Nemerix

11:00 – 11:15

Coffee Break

11:15 – 12:00

Keynote Speeches

Location - Aula Magna

Terrestrial Mapping for a Mobile World

Mr. Eric DesRoche – Intermap Technologies Corporation

12:00 – 13:30

Lunch Break

13:30 – 15:00

Parallel Oral Session A

Location - Aula Magna

Automatic Feature Extraction from MMT Images

(Chair: Dr. Ayman Habib)

ARVEE, Automatic Road Geometry Extraction System for Mobile Mapping

Wang Cheng, Taher Hassan, Naser El-Sheimy

Automatic 3D Extracting Roadmark Objects with Centimetric Accuracy From Stereopairs of a Ground-based Mobile Mapping System

Bahman Soheilian, Nicolas Paparoditis, Didier Boldo, Jean-Paul Rudant

Strategies for Texturing Building Models with Low Resolution Infrared Image Sequences

Hoegner Ludwig, Kumke Holger, Stilla Uwe, Meng Liqiu

Automatic Detection of Range Variance of Facades From Vehicle-based Image Sequence

Kang Zhizhong, Zlatanova Sisi, Gorte Ben

13:30 – 15:00

Parallel Oral Session B

Location – Aula Nievo

LiDAR and SAR Mapping Systems

(Chair: Dr. Charles Toth)

LiDAR System Self-calibration Using Planar Patches From Photogrammetric Data

A. Habib, K. Bang, S. Shin, Edson Mitishita

Integrated GPS-aided Inertial LiDAR and Optical Imaging Systems for Aerial Mapping

Sanchez Richard D., Mullins Jerry L.

Accuracy Estimation for Laser Point Cloud Including Scanning Geometry

Schaer Philipp, Skaloud Jan, Landtwing Stephan, Legat Klaus,

Building Edge Extraction From LiDAR Based on Jump Detection in Non-Parameter Regression Model

Li Yu, Li Jonathan, Chapman Michael

15:00 – 15:15

Coffee Break

15:15 – 17:15

Parallel Oral Session A

Location - Aula Magna

Estimation and Optimization Algorithms

(Chair: Dr. Aboelmagd Noureldin)

Intelligent Tuning of a Kalman Filter Using Low-cost MEMS Inertial Sensors

Goodall Chris, El-Sheimy Naser

Improving the Attitude Accuracy of a Low Cost Mems/gps Integrated System Using GPS Heading Sensor

Huang Yun-Wen , Li Chia-Yuan , Chang Hsiu-Wen, Wu Hsiao-Wen, Hu Han-Wei, Chiang Kai-Wei

Intelligent Pedestrian Positioning in Vienna: Knowledge-based Kalman Filtering

Thienelt Michael, Eichhorn Andreas, Reiterer Alexander

15:15 – 17:15

Parallel Oral Session B

Location – Aula Nievo

Mobile Mapping Applications

(Chair: Dr. Michael Chapman)

Tibet Railway Surveying Using MMT

Hu Qingwu, Chen Zhiyong , Guo Sheng

Geo-registration of Video Sequences Captured From Micro and Mini Uavs – Approaches and Accuracy Assessment

Eugster Hannes, Nebiker Stephan

An Integrated Mobile Mapping System for Data Acquisition and Automated Asset Extraction

Kingston Tara , Gikas Vassilis, Laflamme Claude

Photogrammetric Bridging Using Filtered Monocular Optical Flow

Silva João Fernando, Barbosa Ricardo, Meneguette Jr. Messias, Gallis Rodrigo

Road Facility Investigation Based on Mobile Mapping System

Hu Qingwu, Chen Zhiyong, Guo Sheng

Automatic Identification of Road Sign in Mobile Mapping System

Jae-Seung Jeong, Jae-Min Park, Dong-Hun Jeong, Byung-Guk Kim

Automatic Rectification of Images Through Scale Independent Targets

Artese Giuseppe

17:30

Welcome Party

The welcome party will be held in the conference location at the Basilica (see map on page 26).

Wednesday May 30

9:00 – 10:30

Parallel Oral Session A

Location - Aula Nievo

Direct Georeferencing / Mobile Mapping Applications
(Chair: Dr. Mohamed Mostafa)

**RapidOrthoTM – A New Tool for Rapid Orthophoto Production for
Emergency Response**
Mohamed M.R. Mostafa

**Topographic Mapping Capability Analysis of Mars Exploration Rover
Imagery**
Di Kaichang, Li Ron

**Moving Toward Real-time Mobile Mapping: Autonomous Vehicle
Navigation**
Toth Charles, Ozguner Umit , Brzezinska Dorota

Influence of Tie Point Distribution on Integrated Sensor Orientation
Khoshelham Kourosh, Saadatseresht Mohammad, BG Gorte

9:00 – 10:30

Parallel Oral Session B

Location - Archivio Antico

GNSS / Automated and Semi-automated Image Segmentation and
Object Extraction/Recognition
(Chair: Dr. Uwe Stilla)

Precise Point Positioning for Mobile Mapping
El-Mowafy Ahmed

Semantic Indexing for Visual Recognition of Buildings
Haider Ali, Paar Gerhard, Paletta Lucas

Visual Object Recognition in the Context of Mobile Vision Services
Paletta Lucas

10:30 – 10:45

Coffee Break

10:45 – 12:45

Parallel Oral Session A

Location - Aula Nievo

GNSS

(Chair: Dr. Chris Rizos)

Position and Orientation Data Requirements For Autonomous Vehicle Navigation

Louis Nastro

Performance Evaluation of Sparse Networks of Continuously Operating Reference Station Networks for Mobile Mapping Applications

Gordini Cristian

Comparison of the Performance of Medium and Low Level GNSS Apparatus, with and Without Reference Networks

Brovelli Maria Antonia, Realini Eugenio, Visconti Maria Grazia

Mobile Mapping Applications Based on the Cyprus Permanent GPS Network

S. Stylianidis, S. Spatalas, C. Pikridas, P. Patias

GNSS Network Real Time Positioning: Testing Procedure to Evaluate the Accuracy of a Geodetic GNSS Moving Antenna

Gordini Cristian, Abbondanza Claudio, Barbarella Maurizio

10:45 – 12:45

Parallel Oral Session B

Location - Archivio Antico

Image Sequence Processing

(Chair: Visintini Domenico)

Velocity Estimation of a Mobile Mapping Vehicle Using Filtered Monocular Optical Flow

Barbosa Ricardo, Silva João Fernando, Meneguette Jr. Messias; Gallis Rodrigo

Road Survey by Kalman Filter Rectification of Image Sequences Acquired with a Monoscopic Low-cost MMS

Visintini Domenico

Comprehensive Analysis of True Orthophoto Generation Techniques in a Multi-sensor Environment

Ayman Habib, Ki-In Bang, Changjae Kim, Sungwoong Shin, and Dong-Cheon Lee

The Simplicity and Complexity of Straights and Curves

Leahy Frank Judd Mark Fraser Clive

Modeling Changes in Cloud Structure Using Motion Imagery

Theiss Henry, Johannesen Todd

Accuracy Assessment of ADS40 Imagery as a Function of Flying Height and Aerial Triangulation Strategies

Casella Vittorio, Franzini Marica, Padova Barbara

12:45 – 14:00

Lunch Break

14:00 – 16:00

Parallel Oral Session A

Location - Aula Nievo

Mobile Mapping Applications

(Chair: Dr. Deren Li)

Application of L-MMS in Railroad Clearance Detection

Zhiyong Chen, Qingwu Hu, Jianfeng Yuan

A-tracker: an Animal Tracking Solution

Hunter Andrew, El-Sheimy Naser, Wright, D. Bruce; Stenhouse, G.

Digital Measurable Image Based Geo-Spatial Information Service

Li Deren, Hu Qingwu, Guosheng Chen Zhiyong

Quality Management in Kinematic Laser Scanning Applications

Graefe Gunnar

Hypothesis Generation of Instances of Road Signs in Color Imagery Captured by Mobile Mapping Systems

Habib Ayman, Jha Maya, Chang Yu-chuan

Measurement of Road Roughness by Low-Cost Photogrammetric System

Imre Kertesz, Tamas Lovas, Arpad Barsi

14:00 – 16:00

Parallel Oral Session B

Location - Archivio Antico

LiDAR and SAR Mapping Systems

(Chair: Dr. Jan Skaloud)

Global Registration of Non Static 3D LiDAR Point Clouds: SVD Factorization and Robust GPA Methods

Crosilla Fabio, Beinat Alberto

Integration of LiDAR and Stereoscopic Imagery for Automated Route Corridor Inventory

Mccarthy Timothy, Charlton Martin, Fortheringham Asf, O'malley Vincent

Integration of a Terrestrial LiDAR and a Mobile Mapping Platform

Grussenmeyer Pierre, Smigiel Eddie , Alshawa Majd

A New Approach for Assessing LiDAR Data Accuracy for Corridor Mapping Applications

R. Valerie Ussyshkin and Brent Smith

Analysis of the Headwater Basins' Morphology by High-Resolution LiDAR -derived DTM

Tarolli Paolo, Dalla Fontana Giancarlo

16:00 – 16:15

Coffee Break

16:15 – 17:00

Keynote Speech

Location - Aula Nievo

Opportunities and Challenges in Mobile Mapping for On-line Services and Consumer Applications: A Perspective from Microsoft Virtual Earth

Dr. Vincent Tao, Microsoft Visual Earth

Director of Microsoft Virtual Earth, responsible for the technology and business development of Microsoft Virtual Earth program

17:15 – 19:15

Poster Session

Location - Aula Nievo

Automatic Recognition of Road Sign “passo Carrabile”

Marmo Roberto, Lombardi Luca, Toccalini Andrea

Automatic Recognition of Road Signs by Hough Transform

Cacciola Matteo, Barrile Vincenzo, Morabito Francesco Carlo

Trajectory Tracking by DGPS-odometric Integration for Autonomous Vehicle with Industrial Application

Dal Forno Roberto, Badocco Sergio, Burlon Alessio

Catching a Dynamic Object in Real Time “application of Mobile Mapping in Object Tracking in Real Time”

A. S. Homainejad

MRERA (Minimum Range Error Algorithm): RFID - GNSS Integration for Vehicle Navigation in Urban Canyons

Mok Esmond, Retscher Guenther, Xia Linyuan

Mobile System for Vision Based Road Sign Inventory

Paletta Lucas, Seifert Christin, Benesova Wanda, Andreu Jean-philippe, Lypetsky Yuriy, Hoedl Evelyn, Jeitler Andreas

Low Cost Mobile Surveying Technique with GPSsit

Ibrahim Kalayci, Özsen Corumluoglu

Relational Strategies in Statistical Data Analysis: Mapping, Inferences, Clustering, Topologies, Matching

Mussio Luigi, Dante Valentina

Review and Comparison of Techniques for Terrestrial 3D-view Georeferencing

Mario Alba, Alberto Giussani, Fabio Roncoroni, Marco Scaioni

Visualization of Building Models and Factual Data Integrated by Citygml

Kumke Holger, Stilla Uwe, Hoegner Ludwig, Meng Liqiu

Accuracy Enhancement of Helicopter Position with Low Cost System

Guarnieri Alberto, Pirotti Francesco, Vettore Antonio

Road's Cadastre and Safety Evaluation GIS Realised with Data of a MMS Vehicle

Caroti Gabriella, Piemonte Andrea

Accuracy Check of Road's Cross Slope Evaluation Using MMS Vehicle

Piemonte Andrea, Caroti Gabriella, Bolzon Giorgio

Comparison of Kinematic Parameters of a Moving Vehicle by GNSS Measurements and Inertial/gps Navigation System.

Radicioni Fabio, Fastellini Guido, Stoppini Aurelio, Schiavoni Armando

Mobile Mapping in GPS-denied Areas : a Hybrid Prototype

Gabriel Scarmana

Research and Training Staff, National Technical University of Athens, Greece

Hatzichristos Thomas

The Use of Radarsat and Landsat Image Fusion with Different Image Fusion Algorithms and Different Supervised Classification Methods for Increase Landuse Map Accuracy. Case Study: Sari Plain - Iran

Sadidy. Javad, Zeaiean Forouzabadi. Parviz, Entezari. Alireza

Open Source Mobile GIS Solutions for Different Application Fields

Magni Diego, Brovelli Maria A.

Cadastral Application of Satellite Images with High Spatial Resolution in Eastern Island (chile)

Herrera Victor, Borcosque José

Detecting and Tracking Vehicles in a Roundabout

Artese Giuseppe

GPS-assisted Adjustment of Terrestrial Blocks

Forlani Gianfranco, Pinto Livio

A New Line-simplification Method

Mohammadi Ehsan

Road Sign Safety Identification Through the Use of a Mobile Survey System

Foy Stephen , Mcloughlin Simon , Deegan, Catherine ; Mulvihill, Ciara ; Fitzgerald, Conor ; Markham, Charles

GPS Navigation for Precision Farming

Biagi Ludovico, Capra Alessandro, Castagnetti Cristina, Dubbini Marco, F. Unguendoli

Exploitation of Mobile Mapping for Creation of Survey Sketches

Kocab Milan, Cajthaml Tomas, Vanis Pavel

Semantic Integrity Constraint Violations Check for Spatial Database Updating

Kalum Priyanath Udagepola, Li Xiang, Aw. Wijeratne, Yang Xiaozong

Use of Mobile Mapping Technology for Post-disaster Damage Information Collection and Integration with Remote Sensing Imagery

Luca Gusella, Beverly J. Adams, Gabriele Bitelli

A BackPack Mobile Mapping Application

Ugo Coppa, Guarnieri Alberto, Pirotti Francesco, Vettore Antonio

Commercial Marine-based Mobile Mapping and Survey Systems

Dave Adams

Improving the Reliability of a GPS/INS Navigation Solution for MM Vehicles by Photogrammetry

Cazzaniga Noemi, Forlani Gianfranco, Roncella Riccardo

On Using Qa/qc Techniques for LiDAR-IMU Boresight Misalignment

Pothou Anna, Toth Charles, Karamitsos Spiros, Pr. Georgopoulos Andreas

Adaptive Approach to Mobile Cartography

Kamal Kant Mishra, Milap Punia, H.L. Minam

20:00

GALA DINNER

Gala Dinner will be at the beautiful Rossini Room at the Pedrocchi Café, just in front of the conference location. This café is one of the oldest and nicest places both for the architecture and the internal design. Places for the dinner are limited so please communicate to us as soon as possible if you plan to attend. Price is 40 euro per person.

Thursday May 31

9:00 – 10:30

Parallel Oral Session A

Location - Aula Nievo

Mobile Mapping Technology (platforms, components etc...)

(Chair: Drs. Dorothea Brzezinska)

Calibration of a Non-contact Optical Velocity Sensor for a Precision Farming Application

Siemes Matthias, Kuhlmann Heiner

Implementation of a Low Cost Terrestrial Mobile Mapping System

Madeira Sergio, Gonçalves José Alberto, Bastos Luísa

Vehicle Based Waveform Laser Scanning in a Coastal Environment

Barber David, Mills Jon

Compact Airborne Image Mapping System (CAIMS)

Mccarthy Timothy, Fortheringham Asf, O'rian Gearoid

9:00 – 10:30

Parallel Oral Session B

Location - Archivio Antico

Estimation and Optimization Algorithms

(Chair: Dr. Fabio Crosilla)

Towards Total Kalman Filtering for Mobile Mapping

Schaffrin Burkhard, Iz H. Baki

Neural Network Aided Kalman Filtering for Integrated GPS/INS Georeferencing Platform

Wang Jianguo, Wang Jinling, Sinclair David, Watts Leo

Development of an Intelligent Scheme for Rapid Imu Alignment Utilizing Artificial Neural Networks

Huang Yun-wen, Chiang Kai-wei

Fuzzy Logic-based Methodologies for Mobile Mapping: Enhancing Positioning Accuracy of GPS/GNSS Measurements

Crocetto Nicola, Ponte Salvatore, Savino Luigi

10:30 – 10:45

Coffee Break

10:45 – 12:45

Parallel Oral Session A

Location - Aula Nievo

Mobile Mapping Technology (platforms, components etc...)

(Chair: Dr. Alberto Guarnieri)

On-the-way City Mobile Mapping Using Laser Range Scanner and Fisheye Camera

Xavier Brun, Jean-emmanuel Deschaud, François Goulette

New Technologies for Mobile Mapping

Horea Bendea, Piero Boccoardo, Sergio Dequal, Fabio Giulio Tonolo, Davide Marenchino

Mapping and 3D Modelling of Urban Environment Based on LiDAR, GPS/IMU and Image Data

Krzysztof Gajdamowicz, Milan Horemup, Daniel Öhman

Integration of LiDAR and Terrestrial Mobile Mapping Technology for the Creation of a Comprehensive Road Cadastre

Bomers Maarten, Fuser Roberto, Amoureux Luc, Tosatto Michela

10:45 – 12:45

Parallel Oral Session B

Location - Archivio Antico

Wireless Positioning Techniques

(Chair: Dr. Guenther Retscher)

Map Revise Technique by Using Collaboration of GPS and GIS

Moriya Mitoshi, Shikada Masaaki, Shimano Sota

The Next Step Towards Free Wireless Positioning Techniques for Mobile Phones

Rooney Seamus, Gardiner Keith Carswell James

Ubiquitous Positioning Solutions for Pedestrian Navigation

Retscher Guenther

Mobile Positioning for Traffic State Acquisition

Ramm Katrin, Schwieger Volker

Evaluation Results of Automated Schematic Map Tool for Mobilelbs Applications

Anand Suchith, Ware Mark, Jackson Mike

Mobility Model Based on Incoming and Outgoing Nodes to an Area

Aihara Satoshi, Sasabe Masahiro, Nakano Hirota

12:30 – 14:00

Lunch Break

14:00 – 15:30

Parallel Oral Session A

Location - Aula Nievo

3D Mobile Mapping and GIS Integration

(Chair: Dr. Vincent Tao)

Application of Mobile Mapping Technology and Real Time GIS for Ubiquitous Society

Shimano Sota, Shikada Masaaki, Moriya Mitoshi, Azuma Tastuo

Mobile Mapping Applications: Mobile Electromagnetic Coverage Calculation in GIS

Gumusay Umit, Sen Alper, Bulucu Umut, Aktul Kavas

A 3D Mobile Mapping System: Data Generation, Network Analysis, Simulation and Navigation

Karas Ismail Rakip, Batuk Fatmagul, Emem Ozan

Commercial High-Definition LiDAR/EO Ground Vehicle Mobile Mapping and Survey Systems

Philip Arsenault

14:00 – 15:30

Parallel Oral Session B

Location - Archivio Antico

Estimation and Optimization Algorithms

(Chair: Dr. Naser El-Sheimy)

INS-aided Odometry and Laser Scanning Data Integration for Real-time Positioning and Map-building of Skid-steered Vehicles

Anousaki Georgia, Kyriakopoulos Konstantinos, Gikas Vassilis

Design and Calibration of a Neural Network-based Adaptive Knowledge System for Multi-sensor Personal Navigation

Grejner-brzezinska Dorota, Charles Toth, Shahram Moafipoor, Jay Kwon

Enhancing INS/gps Integration Utilizing Dynamic Neural Network Model for Mobile Mapping Applications

Noureldin Aboelmagd, El-Shafie Ahmed, Tarbouchi Mohammed, El-Sheimy Naser

A Filtering Algorithm for SAR Images Based on MTF

Hu Qingwu, Li Qingquan

15:30 – 15:45

Coffee Break

15:45 – 17:45

Parallel Oral Session A

Location - Aula Nievo

3D Mobile Mapping and GIS Integration

(Chair: Dr. Krzysztof Gajdamowicz)

A Mobile Indoor Location-based GIS Application

Candy Jonathan

GIS Integration of Data Collected by Mobile GPSsit

Durduran S.savaş, Kalaycı İbrahim, Çorumluoğlu Özşen

Integrating Mobile Geo Sensors into Collaborative Virtual Globes – Design and Implementation Issues

Nebiker Stephan

Mobile GIS Application in Urban Areas and Forest Boundaries – a Case Study

Turk Tarik, Hastaoglu Kemal Ozgur

15:45 – 17:45

Parallel Oral Session B

Location - Archivio Antico

Sensor Calibration – Orientation Integration and Reliability

(Chair: Dr. Harald Sternberg)

Camera Calibration for a Robust Omni-directional Photogrammetric System

Fuad Khan, Michael Chapman, Jonathan Li

Calibration of a Mobile Mapping Camera System with Photogrammetric Methods

Scheller Steffen, Westfeld Patrick, Ebersbach Dirk

In-situ Camera and Bore-sight Calibration with LiDAR Data

Yastikli Naci, Toth Charles, Grejner-Brzezinska Dorota A.

Qualification Process for MEMS Gyroscopes for the Use in Navigation Systems

Sternberg Harald, Schwalm Christian

Towards Automated LiDAR Bore-sight Self-calibration

Skaloud Jan, Schaer Phillip

18:00

Closing Ceremony

Sponsors



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Coordinates

A monthly magazine on
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ISPRS IC WG VI - "Integrated Mobile Mapping Systems"

ISPRS IC WG IV - "Autonomous Vehicle Navigation"

ISPRS WG I/3 - "Multi-Platform Sensing and Sensor Networks"

ISPRS WG I/2 - "LiDAR and SAR Systems"

FIG WG5.3 - "Integrated Positioning, Navigation and Mapping Systems"

IAG WG SC4.1 - "Mobile Multi-Sensor Systems"

ISPRS WG II/6 - "System Integration and Interoperability"

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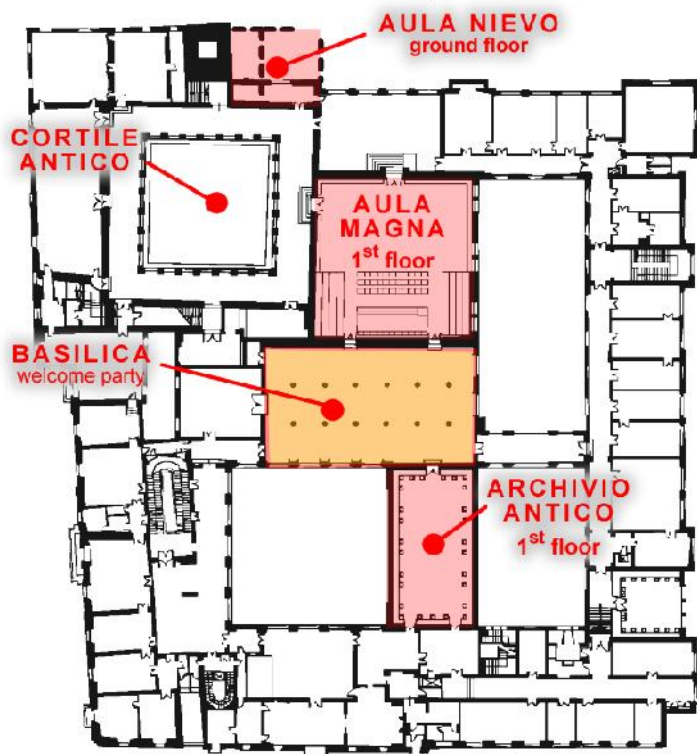
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Map of location

The location of the conferenze is at Palazzo Bo, Via VIII Febbraio n°2 in Padova's old city center.

Plan of Palazzo Bo

Sessions will be in Aula Nievo (ground floor), Aula Magna (1st floor) and Archivio Antico (1st floor)



General Information

Location

The Mobile Mapping Technologies Symposium takes place in the city of Padua, Italy. the building where conferences are held is the central location of the University of Padua, the Bo.

Dates

The Symposium starts in the morning on Tuesday May 29th and ends on Thursday May 31st. the Mobile Mapping Systems Tutorial will take place on Monday May 28th.

Attendance Certificate

Attendance certificates will be available at the welcome desk upon request.

Badges

Badges have to worn at all time. Color codes define participants:

red: staff

yellow: participants

green: invited participants

Coffee Breaks

They will be located at different areas in the building next to session rooms.

Welcome Party

For all participants ice-breaking party will take place at the conference location on Tuesday May 29th at 17:30.

Dinner Gala Dinner

Please let us know if you are planning to attend the Dinner Gala Party as places are limited! Price - 40 euro per person. Date - Thursday 30th 20:00 - Location - it will be at the beautiful Rossini Room at Pedrocchi caffè

Guided Tours

Open guided tours will be made at the Palazzo Bo during conference duration. Guided tour of the Scrovegni Chapel is available for those interested but must be booked by participant.