

ISPRS WORKSHOP

LASER SCANNING 2011

CALGARY, ALBERTA, CANADA
29-31 AUGUST AND 1 SEPTEMBER 2011

FINAL PROGRAM

Monday 29 August 2011

8.30-9.30 Workshop registration

9.30-9.45 Opening
Location: ICT 122

9.45-10.30 **Invited presentation**
Location: ICT 122
Chair: Derek Lichti

LIDAR SYSTEM DEVELOPMENT AND THE IMPLICATIONS OF THE SYSTEM PARAMETERS ON DATA QUALITY

Dr Jan Skaloud, Senior Scientist, École Polytechnique Fédérale de Lausanne, Switzerland

10.30-11.00 **Coffee**
Location: ICT 116

11.00-12.20 **Segmentation 1**
Location: ICT 122
Chair: Sagi Filin

1. POINTS CLASSIFICATION BY A SEQUENTIAL HIGHER - ORDER MOMENTS STATISTICAL ANALYSIS OF LIDAR DATA
Fabio Crosilla, Dimitri Macorig, Ivano Sebastianutti and Domenico Visintini
2. PRIMITIVE-BASED BUILDING RECONSTRUCTION BY INTEGRATION OF LIDAR DATA AND OPTICAL IMAGERY
Wuming Zhang, Pierre Grussenmeyer, Guangjian Yan and Mostafa Mohamed
3. HEURISTICAL FEATURE EXTRACTION FROM LIDAR DATA AND THEIR VISUALIZATION
Suddhasheel Ghosh and Bharat Lohani
4. FEATURES AND GROUND AUTOMATIC EXTRACTION FROM AIRBORNE LIDAR DATA
Costantino Domenica and Angelini Maria Giuseppa

12.20-13.50 **Lunch**
Location: 2nd floor of the Dining Centre (DC)

13.50-15.10 **Full waveform and radiometric modelling**
Location: ICT 122
Chair: Sanna Kaasalainen

1. CALIBRATION OF FULL-WAVEFORM ALS DATA BASED ON ROBUST INCIDENCE ANGLE ESTIMATION
Fanar Abed, Jon Mills and Pauline Miller
2. ANALYSIS AND APPLICATION OF LIDAR WAVEFORM DATA USING A PROGRESSIVE WAVEFORM DECOMPOSITION METHOD
Junfeng Zhu, Zuxun Zhang and Xiangyun Hu
3. LASER PULSE VARIATIONS AND THEIR INFLUENCE ON RADIOMETRIC CALIBRATION OF FULL-WAVEFORM LASER SCANNER DATA
Andreas Roncat, Hubert Lehner and Christian Briese
4. PIXEL VS OBJECT-BASED IMAGE CLASSIFICATION TECHNIQUES FOR LIDAR INTENSITY DATA
Nagwa El-Ashmawy, Ahmed Shaker and Wai Yeung Yan

15.10-15.40 **Coffee**
Location: ICT 116

15.40-17.20 **Point cloud registration and calibration**
Location: ICT 122
Chair: Ahmed Shaker

1. AUTOMATIC REGISTRATION OF MULTIPLE LASER SCANS USING PANORAMIC RGB AND INTENSITY IMAGES
Mario Alba, Luigi Barazzetti, Marco Scaioni and Fabio Remondino
2. FULLY AUTOMATIC IMAGE-BASED REGISTRATION OF UNORGANIZED TLS DATA
Martin Weinmann and Boris Jutzi
3. ANALYSIS OF TWO TRIANGLE-BASED MULTI-SURFACE REGISTRATION ALGORITHMS OF IRREGULAR POINT CLOUDS
Mohannad Al-Durgham, Ivan Detchev and Ayman Habib
4. APPLYING 3D AFFINE TRANSFORMATION AND LEAST SQUARES MATCHING FOR AIRBORNE LASER SCANNING STRIPS ADJUSTMENT WITHOUT GNSS/IMU TRAJECTORY DATA
Camillo Ressel, Norbert Pfeifer and Gottfried Mandlburger
5. AIRBORNE LIDAR: A FULLY-AUTOMATED SELF-CALIBRATION PROCEDURE
Steffen Michael Lindenthal, Valerie R. Ussyshkin, Jian-Guo Wang and Martin Pokorny

18.00-20.00 **Icebreaker**
Location: The Senate Room, Hotel Alma

Tuesday 30 August 2011

8.30-9.15 **Invited presentation**

Location: ICT 122

Chair: Ayman Habib

ACTIVE-PASSIVE FUSION FOR LITTORAL ZONE MAPPING

Dr Grady Tuell

9.15-10.15 **Forestry 1**

Location: ICT 122

Chair: Gunho Sohn

1. APPROXIMATION OF VOLUME AND BRANCH SIZE DISTRIBUTION OF TREES FROM LASER SCANNER DATA
Pasi Raunonen, Sanna Kaasalainen, Mikko Kaasalainen and Harri Kaartinen
2. TOPOLOGY EXTRACTION USING DEPTH FIRST SEARCH ON VOXEL REPRESENTATIONS OF TREE POINT CLOUDS
Anita Schilling, Anja Schmidt, Hans-Gerd Maas and Sven Wagner
3. BIOMASS ESTIMATION OF INDIVIDUAL TREES USING STEM AND CROWN DIAMETER TLS MEASUREMENTS
Markus Holopainen, Mikko Vastaranta, Ville Kankare, Minna Rätty, Matti Vaaja, Xinlian Liang, Xiaowei Yu, Juha Hyyppä, Hannu Hyyppä, Risto Viitala and Sanna Kaasalainen

10.15-10.45 **Coffee**

Location: ICT 116

10.45-12.05 **Segmentation 2**

Location: ICT 122

Chair: Marco Scaioni

1. DIMENSIONALITY BASED SCALE SELECTION IN 3D LIDAR POINT CLOUDS
Jerome Demantke, Clement Mallet, Nicolas David and Bruno Vallet
2. AN ADAPTIVE APPROACH FOR SEGMENTATION OF 3D LASER POINT CLOUD
Zahra Lari, Ayman Habib and Eunju Kwak
3. DETECTION OF ROAD CURB FROM MOBILE TERRESTRIAL LASER SCANNER POINT CLOUD
Sherif Ibrahim, Adel Moussa, Derek Lichti and Naser El-Sheimy
4. POLE-LIKE OBJECTS RECOGNITION FROM MOBILE LASER SCANNING DATA USING SMOOTHING AND PRINCIPAL COMPONENT ANALYSIS
Hiroki Yokoyama, Hiroaki Date, Satoshi Kanai and Hiroshi Takeda

12.05-13.30 **Lunch**

Location: 2nd floor of the Dining Centre (DC)

13.30-14.50 **Range sensor modelling, performance and optimization**

Location: ICT 122

Chair: David Belton

1. POINT-BASED VERSUS PLANE-BASED SELF-CALIBRATION OF STATIC TERRESTRIAL LASER SCANNERS
Jacky Chow, Derek Lichti and Craig Glennie
2. OPTIMIZING TERRESTRIAL LASER SCANNING MEASUREMENT SET-UP
Sylvie Soudarissanane and Roderik Lindenbergh

3. ACCURACY ANALYSIS OF KINECT DEPTH DATA
Kourosh Khoshelham
4. EVALUATION OF REAL-TIME HAND MOTION TRACKING USING A RANGE CAMERA AND THE MEAN-SHIFT ALGORITHM
Hervé Lahamy and Derek Lichti

14.50-15.20 **Coffee**
Location: ICT 116

14.50-16.30 **Poster session**
Location: ICT 116

1. THE ASSESSMENT OF THE ABSOLUTE PLANIMETRIC ACCURACY OF AIRBORNE LASERSCANNING
Joachim Höhle
2. AIRBORNE LIDAR: A FULLY-AUTOMATED SELF-CALIBRATION PROCEDURE
Steffen Michael Lindenthal, Valerie R. Ussyshkin, Jian-Guo Wang and Martin Pokorny
3. GEO-REFERENCED MAPPING USING AN AIRBORNE 3D TIME-OF-FLIGHT CAMERA
Tobias K. Kohoutek, Manuel Nitsche and Henri Eisenbeiss
4. THE FUSION OF INDIVIDUAL TREE DETECTION AND VISUAL INTERPRETATION IN ASSESSMENT OF FOREST VARIABLES FROM LASER POINT CLOUDS
Ville Kankare, Mikko Vastaranta, Markus Holopainen, Xiaowei Yu, Juha Hyypä and Hannu Hyypä
5. LAND-BASED MOBILE LASER SCANNING SYSTEMS: A REVIEW
Iván Puente, Higinio González-Jorge, Pedro Arias and Julia Armesto.
6. AREA-BASED SNOW DAMAGE CLASSIFICATION OF FOREST CANOPIES USING BI-TEMPORAL LIDAR DATA
Mikko Vastaranta, Ilkka Korpela, Antti Uotila, Aarne Hovi and Markus Holopainen
7. RADIOMETRIC CALIBRATION OF TLS INTENSITY: APPLICATION TO SNOW COVER CHANGE DETECTION
Kati Anttila, Sanna Kaasalainen, Anssi Krooks, Harri Kaartinen, Antero Kukko, Terhikki Manninen, Panu Lahtinen and Niilo Siljamo
8. LIDAR PHOTOGRAMMETRY AND ITS DATA ORGANIZATION
Xiangyun Hu, Zuxun Zhang and Yansong Duan
9. GEOREFERENCING OF TLS DATA FOR INDUSTRIAL INDOOR COMPLEX SCENES: BEYOND CURRENT SOLUTIONS
Jean-François Hullo, Pierre Grussenmeyer, Tania Landes and Guillaume Thibault
10. A LOW BUDGET MOBILE LASER SCANNING SOLUTION USING ON BOARD SENSORS AND FIELD BUS SYSTEMS OF TODAY'S CONSUMER AUTOMOBILES
Dominik Vock and Markus Jungmichel
11. PERFORMANCE ANALYSIS OF A POLE AND TREE TRUNK DETECTION METHOD FOR MOBILE LASER SCANNING DATA
Matti Lehtomäki, Anttoni Jaakkola, Juha Hyypä, Antero Kukko and Harri Kaartinen
12. A DATA MANAGEMENT METHOD FOR EFFICIENT SEARCH AND RENDERING OF MULTIPLE LARGE SCALE POINT CLOUDS
Takashi Maeno, Hiroaki Date and Satoshi Kanai
13. VOXEL-BASED ESTIMATION OF PLANT AREA DENSITY FROM AIRBORNE LASER SCANNER DATA
Youngkeun Song, Masayasu Maki, Junichi Imanishi and Yukihiro Morimoto
14. THE EFFECTS OF LASER REFLECTION ANGLE ON RADIOMETRIC CORRECTION OF THE AIRBORNE LIDAR INTENSITY DATA
Ahmed Shaker, Wai Yeung Yan and Nagwa El-Ashmawy

15. ESTIMATION OF VERTICAL DEFLECTIONS IN CONCRETE BEAMS THROUGH DIGITAL CLOSE RANGE PHOTOGRAMMETRY
Ivan Datchev, Ayman Habib and Mamdouh El-Badry
16. AEROTRIANGULATION SUPPORTED BY CAMERA STATION POSITION DETERMINED VIA PHYSICAL INTEGRATION OF LIDAR AND SLR DIGITAL CAMERA
Edson Mitishita, Marlo Martins, Jorge Centeno and Fabiano Hainosz
17. LIDAR AND INS FUSION IN PERIODS OF GPS OUTAGES FOR MOBILE LASER SCANNING MAPPING SYSTEMS
Itzik Klein and Sagi Filin
18. AN INTEGRATED APPROACH TO ACCURATE DEM GENERATION USING AIRBORNE FULL WAVEFORM LIDAR DATA
Baoxin Hu, Damir Gumerov and Jianguo Wang
19. AUTOMATIC EXTRACTION OF ROCK JOINTS FROM LASER SCANNED DATA BY MOVING LEAST SQUARES METHOD AND FUZZY K-MEANS CLUSTERING
Sungchan Oh, Hyeong-Dong Park and Young Do Jo
20. ACCURACY AND RELIABILITY ASSESSMENT OF GLAS MEASUREMENTS OVER ISRAEL
Zachi Shtain and Sagi Filin
21. RANDOM FORESTS BASED MULTIPLE CLASSIFIER SYSTEM FOR POWER-LINE SCENE CLASSIFICATION
Heungsik Brian Kim and Gunho Sohn
22. 3D CATENARY CURVE FITTING FOR GEOMETRIC CALIBRATION
Ting On Chan and Derek Lichti

17.15 **Bus to dinner at Kananaskis Guest Ranch**
Meeting location: in front of Hotel Alma

10.00 **Return to Hotel Alma**

Wednesday 31 August 2011

9.00-9.45 **Invited presentation**

Location: ICT 122

Chair: Derek Lichti

TERRESTRIAL LASERSCANNING IN FOREST INVENTORY AND MANAGEMENT

Prof. Dr. sc. techn. habil. Hans-Gerd Maas, Technical University of Dresden, Germany

9.45-10.45 **Forestry 2**

Location: ICT 122

Chair: Pedro Arias-Sánchez

1. VERTICAL VEGETATION STRUCTURE ANALYSIS AND HYDRAULIC ROUGHNESS DETERMINATION USING DENSE ALS POINT CLOUD DATA - A VOXEL BASED APPROACH
Michael Vetter, Bernhard Höfle, Markus Hollaus, Christine Gschöpf, Gottfried Mandlbürger, Norbert Pfeifer and Wolfgang Wagner
2. FOREST SPECIES CLASSIFICATION BASED ON STATISTICAL POINT PATTERN ANALYSIS USING AIRBORNE LIDAR DATA
Jili Li, Baoxin Hu and Thomas L. Noland
3. VEGETATION CHARACTERISTICS USING MULTI-RETURN TERRESTRIAL LASER SCANNER
Francesco Pirotti, Alberto Guarnieri and Antonio Vettore

10.45-11.15 **Coffee**

Location: ICT 116

11.15-12.35 **Segmentation 3**

Location: ICT 122

Chair: Camillo Ressel

1. AUTOMATIC RECOGNITION OF PIPING SYSTEM FROM LARGE-SCALE TERRESTRIAL LASER SCAN DATA
Kazuaki Kawashima, Satoshi Kanai and Hiroaki Date
2. RECONSTRUCTION OF CONSISTENT 3D CAD MODELS FROM POINT CLOUD DATA USING A PRIORI CAD MODELS
Aurélien Bey, Raphaëlle Chaine, Raphaël Marc, Guillaume Thibault and Samir Akkouche
3. IDENTIFYING CORRESPONDING SEGMENTS FROM REPEATED SCAN DATA
Bas Van Goor, Roderik Lindenbergh and Sylvie Soudarissanane
4. INTEGRATION OF TERRESTRIAL LASER SCANNING POINTS AND 2D FLOOR PLANS BASED ON MAXIMUM SEQUENTIAL SIMILARITY
Langyue Wang and Gunho Sohn

12.45-14.00 **Lunch**

Location: 2nd floor of the Dining Centre (DC)

14.00-15.00 **Applications**

Location: ICT 122

Chair: Hiroaki Date

1. DETECTION OF COLLAPSED BUILDINGS BY CLASSIFYING SEGMENTED AIRBORNE LASER SCANNER DATA
Sander Oude Elberink, Moreblessings Shoko, Martin Rutzinger and Seyed Abdolmajid Fathi

2. MODELLING OF AN INEXPENSIVE 9M SATELLITE DISH FROM 3D POINT CLOUDS CAPTURED BY TERRESTRIAL LASER SCANNERS
David Belton, Aaron Gibson, Bruce Stansby, Steven Tingay and Kwang-Ho Bae
3. FUSION OF MOBILE LASER SCANNING AND PANORAMIC IMAGES FOR STUDYING RIVER ENVIRONMENT TOPOGRAPHY AND CHANGES
Matti Vaaja, Matti Kurkela, Hannu Hyyppä, Petteri Alho, Juha Hyyppä, Antero Kukko, Harri Kaartinen, Elina Kasvi, Sanna Kaasalainen and Petri Rönholm

15.00-15.15 **Closing**
Location: ICT 122
Chair: Ayman Habib

Thursday 1 September 2011

Tutorial: Probabilistic Data Analysis Using Graphical Models

Prof. Dr.-Ing. Wolfgang Förstner, University Bonn, Germany

9.00-10.30 Tutorial, ICT 114

10.30-10.45 Coffee, ICT 116

10.45-12.15 Tutorial, ICT 114

12.15-13.15 Lunch

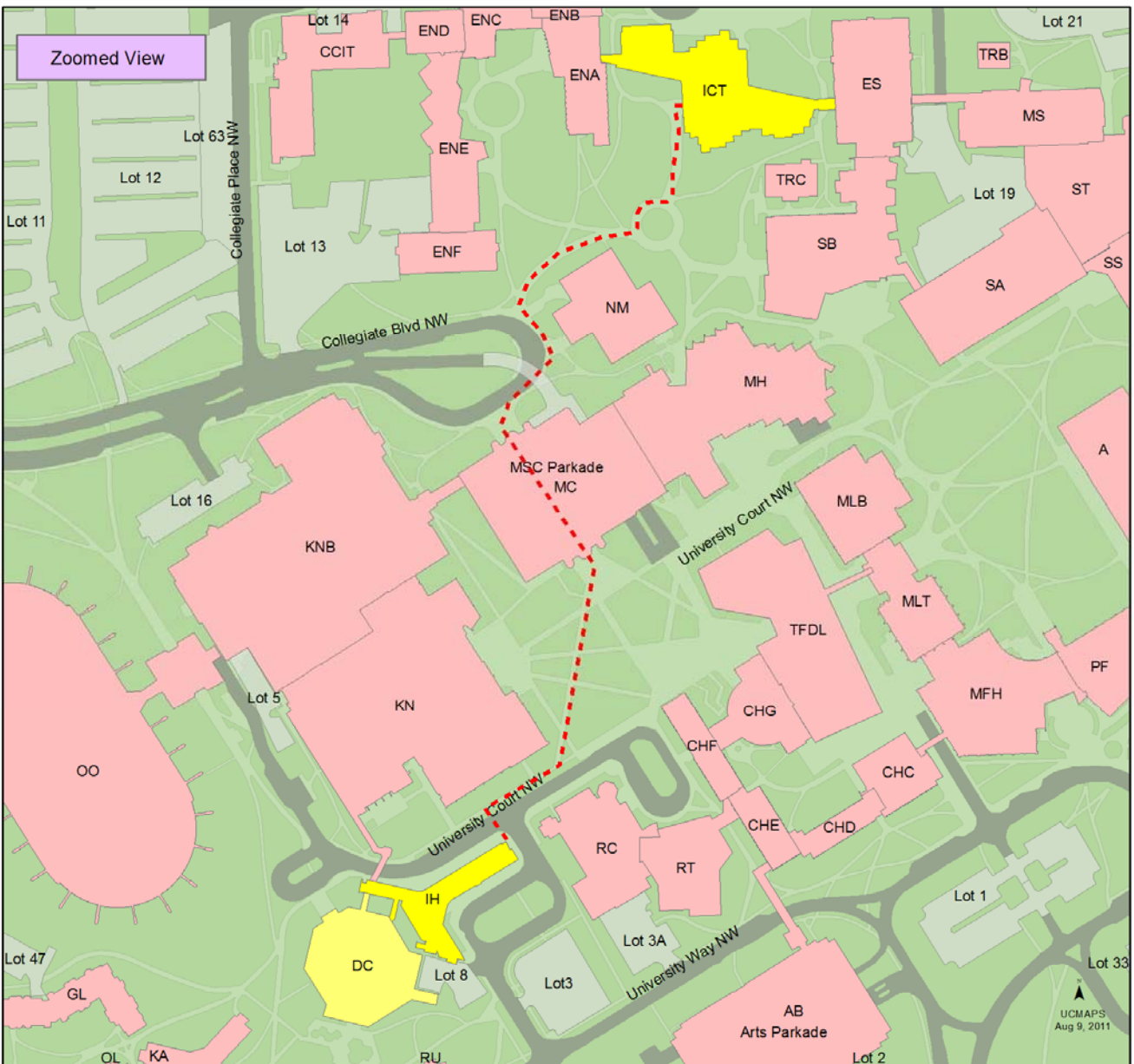
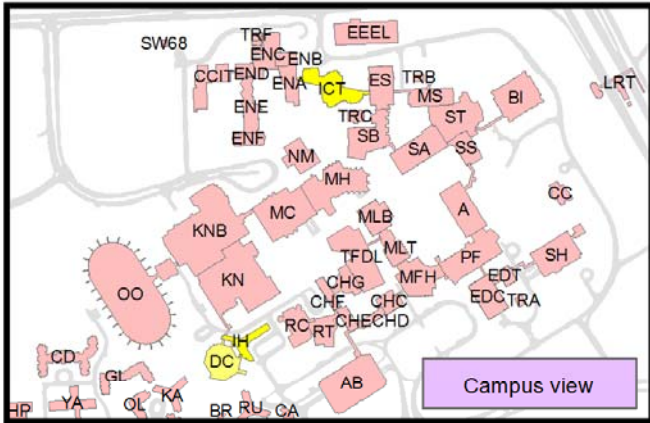
Location: ICT 116

13.15-14.45 Tutorial, ICT 114

14.45-15.00 Coffee, ICT 116

15.00-16.30 Tutorial, ICT 114

Conference Map



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