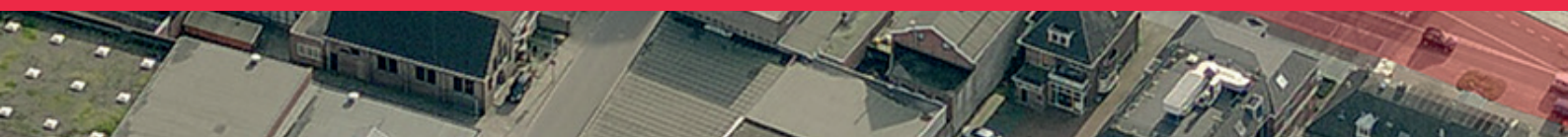
GEOBIA2016

SOLUTIONS & SYNERGIES

ENSCHEDE 14-16 SEPTEMBER

Trimble® **PROGRAM**

ITC UNIVERSITY OF TWENTE.



MY TOUCH
SOLVING LAND PROBLEMS

"I decided to study at ITC in order to obtain more knowledge and skills to be able to share with others. I want to be able to make even better use of my professional and scientific expertise. I opted for ITC because of its good reputation in the field of geo-information sciences and remote sensing. I eventually want to help solve problems in the field of land usage."

As Peter Fosudo has discovered, the faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente in Enschede, the Netherlands, is one of the world's foremost education and research establishments in the field of geo-information science and earth observation. We offer a wide range of the world's best degree courses in the following fields:

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- LAND ADMINISTRATION
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PETER FOSUDO,
MASTER'S STUDENT GEO-INFORMATION SCIENCE AND EARTH OBSERVATION AT ITC

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ITC

UNIVERSITY OF TWENTE.

HIGH TECH HUMAN TOUCH

Welcome

Dear delegates, colleagues and friends,

10 years have passed since the first GEOBIA in Salzburg, and since then the community has met in Calgary, Ghent, Rio de Janeiro and Thessaloniki. It is now our pleasure, on behalf of ITC/ the University of Twente, to welcome you to the 6th GEOBIA conference, themed (*Solutions & Synergies*).

As a research domain GEOBIA has undergone a tremendous development. What started out as a workshop of a relatively small group of researchers, has been drawing from the sustained enthusiasm of a growing community, resulting in a distinct sub-discipline of the GIsciences. At the same time object-based analysis approaches have become common in many fields, such as computer vision and machine learning. To connect more with colleagues from those domains, with this conference we focus on how the different fields that use GEOBIA can better learn from each other.

Given ITCs mandate of technological capacity development, especially in economically less developed countries, we also wanted to use the conference to address the limited operational use of GEOBIA solutions, in governments, industry, NGOs etc. For that reason we included a benchmarking effort aimed at stimulating the development of optimized, generic and transferable methods for standard GEOBIA problems, and arranged a plenary discussion with experts from different regions, to identify challenges in operationalization.

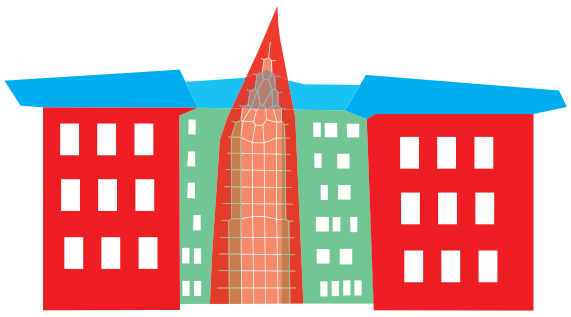
We are now looking forward to 3 days of exciting and stimulating presentations and posters, insightful keynotes and discussions, after already having had several days of advanced software training and a colloquium for young researchers. We have also scheduled a range of social events we hope you will enjoy.

Many people contributed to the planning of this event, and we especially acknowledge the input of the local and the international scientific organization committees, the support by the ITC local organization committee, the volunteers, as well as the sponsors of this conference.

We wish you an interesting and memorable time in Enschede.

On behalf of the organizing committee,

Norman Kerle, Markus Gerke and Sébastien Lefèvre, chairs GEOBIA 2016



GEOBIA2016

SOLUTIONS & SYNERGIES

Program at Glance

Day 01 Monday, 12 September 2016, ITC Building

13:30 - 17:00 PhD Colloquium

Day 02 Tuesday, 13 September 2016, ITC Building

09:00 - 17:00 Trimble eCognition Training
09:00 - 17:00 PhD Colloquium
17:30 - 19:00 Icebreaker

Day 03 Wednesday, 14 September 2016, Waaier Building Campus UT

09:00 - 10:45 Opening and Keynote Ed Parsons (Waaier 2)
10:45 - 11:15 Coffee
11:15 - 13:00 Trimble Session (Waaier 2)
13:00 - 14:15 Lunch
14:15 - 16:00 Technical Session: Segmentation (Carre 2M)
14:15 - 16:00 Technical Session: Solutions & Operationalization (Carre 2K)
14:15 - 16:00 Technical Session: Vegetation (Carre 2L)
16:00 - 16:30 Coffee
16:30 - 18:00 Poster Session: Classification & Change Detection (Poster Area 1)
16:30 - 18:00 Poster Session: Segmentation (Poster Area 2)
16:30 - 18:00 Poster Session: Solutions & Operationalisation (Poster Area 3)
19:00 - 21:00 Reception (Design Lab)

Day 04 Thursday, 15 September 2016, Waaier Building Campus UT

09:00 - 10:45 Keynotes Wolfgang Förstner and Lorenzo Bruzzone (Waaier 2)
10:45 - 11:15 Coffee
11:15 - 13:00 Technical Session: Classification (Carre 2M)
11:15 - 13:00 Technical Session: Machine Learning & Automation (Carre 2K)
11:15 - 13:00 Technical Session: Urban (Carre 2L)
13:00 - 14:15 Lunch
14:15 - 16:00 Technical Session: Accuracy & Time Series (Carre 2M)
14:15 - 16:00 Technical Session: Semantics (Carre 2K)
14:15 - 16:00 Technical Session: UAV Data & Point Clouds (Carre 2L)
16:00 - 16:30 Coffee
16:30 - 18:00 Poster Session: Novel OBIA applications (Poster Area 1)
16:30 - 18:00 Poster Session: UAV and Lidar Point Clouds (Poster Area 2)
16:30 - 18:00 Poster Session: Urban (Poster Area 3)
19:30 - 22:00 Conference Dinner (Faculty Club)

Day 05 Friday, 16 September 2016, Waaier Building Campus UT

09:00 - 09:45 Keynote Giles Foody (Waaier 2)
09:45 - 10:45 Plenary session Solutions & Synergies (Waaier 2)
10:45 - 11:15 Coffee
11:15 - 13:00 Poster Session: Machine Learning & Automation (Poster Area 1)
11:15 - 13:00 Poster Session: Vegetation (Poster Area 2)
11:15 - 13:00 Poster Session: Water (Poster Area 3)
13:00 - 14:15 Lunch
14:15 - 16:00 Technical Session: Machine Learning & Automation (Carre 2M)
14:15 - 16:00 Technical Session: Multi-Scale Analysis (Carre 2K)
14:15 - 16:00 Technical Session: Vegetation (Carre 2L)
16:00 - 16:30 Coffee
16:30 - 18:00 Closing session (Waaier 2)

Committees

Chairs

- Norman Kerle
- Markus Gerke
- Sébastien Lefèvre – University of Bretagne Sud

Local scientific committee

- Victor Jetten
- Freek van der Meer
- Francesco Nex
- Sander Oude Elberink
- Valentyn Tolpekin
- Tom Veldkamp
- Anton Vrieling
- Harald van der Werff

International scientific organization committee

- Elisabeth Addink - Utrecht UniversityCláudia
- Maria de Almeida - National Institute for Space Research
- Niels Anders - University of Amsterdam
- Paul Aplin - Edge Hill University (UK)
- Jagannath Aryal - University of Tasmania
- Christoph Aubrecht - Austrian Institute of Technology & The World Bank
- Thomas Blaschke - University of Salzburg
- Gilson Alexandre Ostwald Pedro da Costa - Pontifical Catholic University of Rio de Janeiro
- Lucian Drgu - West University of Timisoara
- Raul Queiroz Feitosa - Pontifical Catholic University of Rio de Janeiro
- Jorge Fernandez-Galarreta - Pix4D
- Ioanis Gitas - Aristotle University of Thessaloniki
- Richard Gloaguen - TU Bergakademie Freiberg
- Geoffrey Hay - University of Calgary
- Christian Heipke - University of Hannover & ISPRS
- Martin Herold - Wageningen University
- Peter Hofmann - University of Salzburg
- Kasper Johansen - University of Queensland
- Steven de Jong - Utrecht University
- Stefan Lang - University of Salzburg
- Jan de Leeuw - World Agroforestry Centre & Consultative Group on International Agricultural Research
- Marguerite Madden - University of Georgia
- Clément Mallet - IGN
- Tapas Martha - National Remote Sensing Centre Hyderabad
- Franz Rottensteiner - University of Hannover
- Martin Rutzinger - Institute for Interdisciplinary Mountain Research, Austrian Academy of Sciences
- Harry Seijmonsbergen - University of Amsterdam
- André Stumpf - University of Strasbourg
- Dirk Tiede - University of Salzburg
- Angelos Tzotsos - National Technical University Athens
- Frieke Van Coillie - Ghent University

Local organization committee

- Saskia Tempelmann
- Jorien Terlouw
- Laurens van der Velde
- Kim Hovestad – Bekmann
- Casper Rossing

Sponsor acknowledgement

We gratefully acknowledge the support by our sponsors.

Gold sponsors

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Trimble eCognition – From Geospatial Data to Information

The Trimble eCognition software suite is the original and most complete object-based image analysis package in the market. Trimble is happy to support the 6th GEOBIA conference as Gold sponsor, and the eCognition team is looking forward to demonstrate the latest eCognition features to improve, accelerate and automate the interpretation of geospatial data. By participating the conference and the pre-event training attendees will bring the latest OBIA techniques back to their organizations to solve even the most challenging image analysis tasks.

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Key Note Speakers

Ed Parsons,
Geospatial Technologist, Google

Wednesday, 14.9.2016, 9:30-10:30

Ed Parsons is the Geospatial Technologist of Google, with responsibility for evangelising Google's mission to organise the world's information using geography. In this role he maintains links with Universities, Research and Standards Organisations which are involved in the development of Geospatial Technology. He is currently co-chair of the W3C/OGC Spatial Data on the Web Working Group.

Ed was the first Chief Technology Officer in the 200-year-old history of Ordnance Survey, and was instrumental in moving the focus of the organisation from mapping to Geographical Information. He came to the Ordnance Survey from Autodesk, where he was EMEA Applications Manager for the Geographical Information Systems (GIS) Division. He earned a Masters degree in Applied Remote Sensing from Cranfield Institute of Technology and holds a Honorary Doctorate in Science from Kingston University, London and is a fellow of the Royal Geographical Society.

The focus of his presentation will be the Terra Bella project (https://terrabella.google.com/).

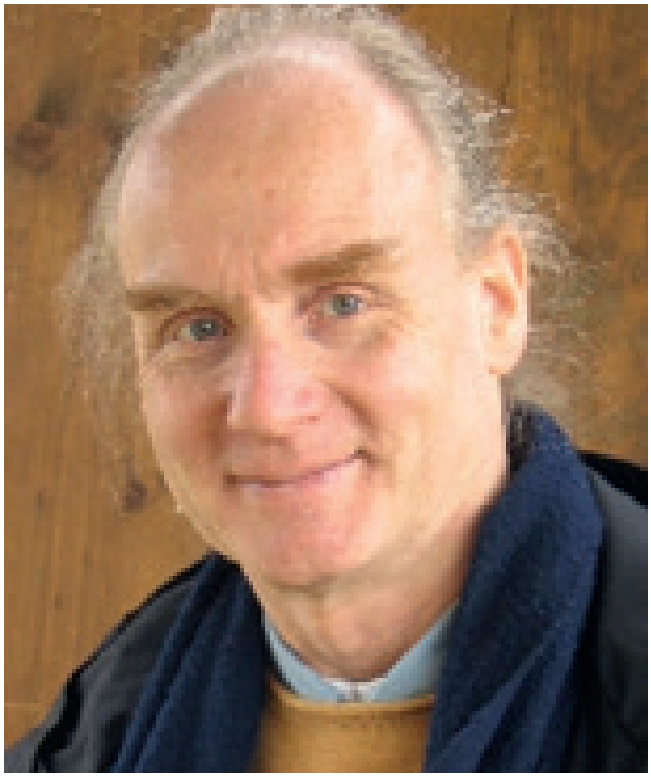
Prof. Wolfgang Förstner,
University of Bonn (Germany)

Thursday, 15.9.2016, 9:00-9:45

Wolfgang Förstner is Professor for Photogrammetry at the University of Bonn. His main research interests are statistical methods for image analysis, semantic modeling, and machine learning. He published around 200 scientific papers and supervised more than 30 PhD students. Wolfgang has been co-editor of the Zeitschrift für Photogrammetrie, Fernerkundung und Geoinformation (1990-1996) and associated editor of the IEEE Transactions on Pattern Analysis and Machine Intelligence (2006-2010). He chaired several ISPRS Working Groups and was President of the ISPRS Commission III (2004-2008). In 2016 he received the Brock Gold Medal Award for his outstanding contribution to the development in the fields of photogrammetry, remote sensing and spatial information sciences.

On Semantic Segmentation for Image Interpretation

Automatic interpretation of intensity or range images aims at deriving a rich semantic description of the scene solving a user specified task. The gap between the gridded or irregular structure of the measured data and the user's semantic model is classically bridged by supervised classification applied to the original data or to adequately aggregated data. Segmentation has played a key role for finding such aggregates and often can be interpreted as unsupervised clustering in some feature space. In order to overcome the disadvantages this two-step strategy, where the classification has no influence onto the segmentation, the concept of semantic segmentation has been propagated, which is kind of supervised clustering. In the talk we will discuss the progress in semantic segmentation and discuss its role for the interpretation of complex images.



Key Note Speakers

Prof. Lorenzo Bruzzone,
University of Trento (Italy),

Thursday, 15.9.2016, 9:45-10:30

Lorenzo Bruzzone received the Laurea (M.S.) degree in electronic engineering (summa cum laude) and the Ph.D. degree in telecommunications from the University of Genoa, Italy, in 1993 and 1998, respectively. He is currently a Full Professor of telecommunications at the University of Trento, Italy, where he teaches remote sensing, radar, pattern recognition, and electrical communications.

Dr. Bruzzone is the founder and the director of the Remote Sensing Laboratory in the Department of Information Engineering and Computer Science, University of Trento. His current research interests are in the areas of remote sensing, radar and SAR, signal processing, and pattern recognition. He promotes and supervises research on these topics within the frameworks of many national and international projects. He is the author (or coauthor) of 161 papers in referred international journals (111 in IEEE journals), more than 220 papers in conference proceedings, and 17 book chapters.
He is editor/co-editor of 16 books/conference proceedings.

His keynote presentation is entitled “Current scenario and challenges in classification of remote sensing images”

Prof. Giles Foody,
University of Nottingham (UK)

Friday, 16.9.2016, 9:00-9:45

Giles M. Foody is Professor of Geographical Information Science at the University of Nottingham, UK. His main research interests focus on the interface between remote sensing, ecology, and informatics. Giles is founding editor-in-chief of Remote Sensing Letters and co-editor-in-chief of the International Journal of Remote Sensing, as well as a member of the editorial board of several other journals such as Remote Sensing of Environment, Landscape Ecology and Ecological Informatics. Topics of particular interest relate to image classification for land cover mapping and monitoring applications, addressing issues at scales ranging from the sub-pixel to global.

Observations on accuracy assessments of object-based image classifications

This presentation will focus on the assessment of the accuracy of object-based image classifications. It will begin with an overview of the need for accuracy assessment. This will be followed by a summary of good practices for accuracy assessment, with particular regard to the three main stages encountered in traditional design-based assessments of accuracy: response design, sampling design and accuracy assessment.

Using an example from each stage some key issues in accuracy assessment of object-based classifications will be highlighted. The presentation will show that assessments of the accuracy of object-based classifications are often flawed but hopefully illustrate how they could be enhanced.

Location Map

MAP OF THE UNIVERSITY OF TWENTE

Bastille (BA)	48	Erve Holzik (ER)	40	Kleinhorst** (KH)	23	Schuur (SR)	43
Blokhutten (BL)	63	Faculty Club (FC)	42	Linde (LI)	61	Seinhuis (SH)	7
BMC (BI)	32	The Gallery (GY)	17	Logica (LO)	65	Sky (SK)	51
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Carillon (CN)	4	Hogekamp (HO)	45	O&O plein (OO)	0	Technohal (TH)	18
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						Vleugel (VL)	3
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						Vrijhof (VR)	47
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						Zuidhorst** (ZH)	28
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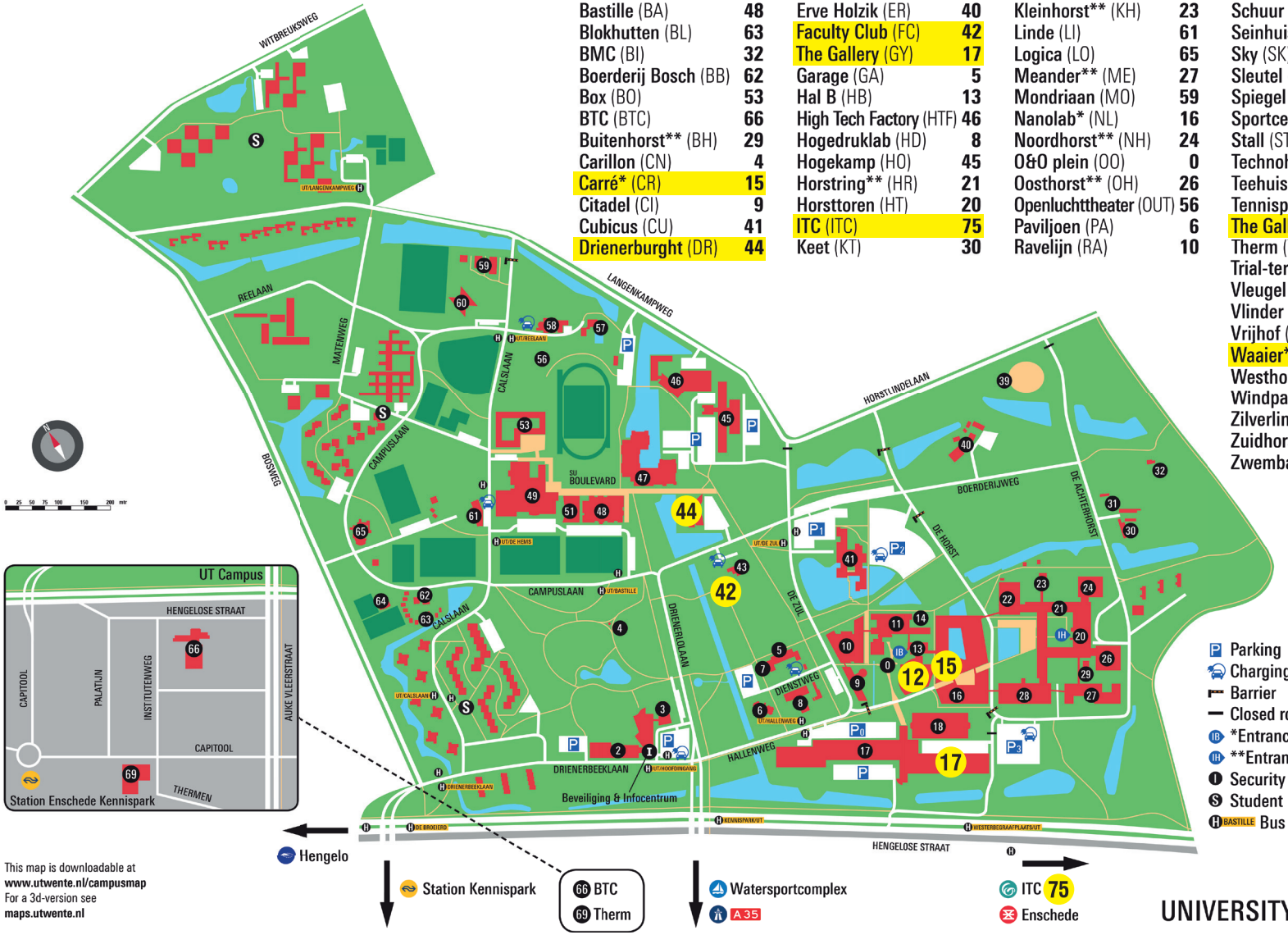


This map is downloadable at
www.utwente.nl/campusmap
For a 3d-version see
maps.utwente.nl

UNIVERSITY OF TWENTE.

Destination	Building number

FACULTIES

Faculty of Behavioural, Management & Social Sciences (BMS) **10, 41**
Educational Science and Technology; Psychology; Communication Studies; Philosophy of Science, Technology and Society; Teacher's training; Business Administration; Public Administration; European Studies; Industrial Engineering and Management

Faculty of Engineering Technology (CTW) **20, 21, 22, 45**
Civil Engineering; Industrial Design Engineering; Sustainable Energy Technology; Mechanical Engineering; Construction Management & Engineering

Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) **9, 11, 15**
Electrical Engineering; Applied Mathematics; Business Information Technology; Creative Technology; Telematics; Computer Science; Embedded Systems; Mechatronics; Human Media Interaction; Systems and Control

University College Twente (ATLAS) **9**

Faculty of Science and Technology (TNW) **15, 20, 21, 24, 26, 27, 28**
Advanced Technology; Biomedical Technology; Chemical Engineering; Health Sciences; Nanotechnology; Applied Physics; Technical Medicine

Faculty of Geo-Information Science and Earth Observation (ITC) **75**

Destination	Building number

INSTITUTES

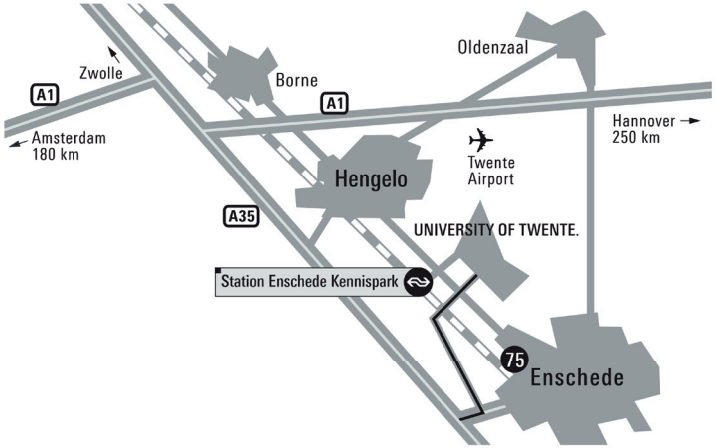
CTIT Centre for ICT Research in Context 11
ELAN 41
IGS Institute for Governance Studies 10
ITC Faculty of Geo-Information Science and Earth Observation 75
MESA+ Institute for Nanotechnology 15, 16
MIRA Institute for Biomedical Technology and Technical Medicine 28

SERVICE DEPARTMENTS AND FACILITIES

Acasa (student housing) 58
Admission Office 47
Bicycle workshop 'De 2e Versnelling' 53
Campus Company (reservations & events) 47
Central Student Administration (CSA) 47
Centre for Educational Support (CES) 47
Children's day care centre 'Vlinder' (Catalpa) 60
Culture centre, Vrijhof 47
Delivery 5
DesignLab 17
Exam Hall (Therm) 69
Executive Board (CvB) 3
Facility Department (FB) 6
Faculty Club 42
Financial and Economic Affairs (FEZ) 2
General Affairs (AZ) 2
General Practitioner & Dentist 58
Hair Dresser (De Barreboks) 51
High Tech Factory 46
Hotel Drienerburght 44
Hotel Logica 65
Human Resources (HR) 2
ICT-Servicedesk 9

Destination	Building number

Kennispark Twente (via parking Hengelosestraat) 17
Library, IT & Archive (LISA) 47
Mail room 5
Main Entrance 2, 3
Marketing & Communication Department (M&C) 2
Notebook Service Centre (NSC) 9
O&O square 0
Physiotherapy (Topvorm Twente) 49
Professional Learning & Development (PLD) 10
Restaurants 12, 42, 47
Science Shop (WeWi) 17
Security & Info Centre 2
Shops (COOP Supermarket) 51
Sports centre 49
Strategy & Policy (S&B) 2
Student Counsellors, Councelling Service & Student Psychologists 47
Student Restaurant (Mensa) 12
Student Services & International Office 47
Student Union 48
Studium Generale (SG) 47
Study Information Office (SI) 2
Swimming Pool 49, 57
TCP Language Centre (TCP) 47
Theatercafé Vrijhof 47
Twente Academy (Young) 48
Twente Graduate School (TGS) 10
Unionshop 48
UT-Nieuws 47
UT Athletic Track 47
Vestingbar 48
Xerox Service Center 13



Visiting Address

University of Twente
Drienerlolaan 5
7522 NB Enschede

ITC
Hengelosestraat 99
7514 AE Enschede

Postal address

University of Twente
Postbus 217
7500 AE Enschede

Route to the campus / University of Twente?

BY CAR

From the A1 motorway, take the A35 motorway in the direction of **Enschede**
Take exit 26: **Enschede - West / Universiteit**
Follow the signs '**Universiteit**'

BY TRAIN / BUS

From **Enschede** railway station:	line number 1 in the direction of 'Universiteit Twente'
	line number 8 in the direction of Hengelo-Noord
	line number 9 in the direction of Hengelo
From **Enschede Kennispark** railway station:	line number 1 in the direction of 'Universiteit Twente'
From **Hengelo** railway station:	line number 9 in the direction of Enschede

For more information, please visit **www.9292.nl**

Route to faculty ITC 75

Follow the route to the **University**
After the roundabout, turn right (follow '**Centrum**')
After 3 km, you will find the ITC building at your right-hand side

Version: 2016.07.05

General information

Registration desk

The registration desk is located near the central reception of the Waaier building, and will open daily at 8:00. Those who have not yet paid the registration fee can do so (in cash Euro). Alternatively, credit card-based payments can still be done via the University of Twente InternetKassa.Those joining a social excursion on Saturday, 17 September, can also pay at the registration desk.

Conference secretariat

The conference secretariat is located in Carré room 2N, near the parallel session rooms. It will also open daily at 8:00. Here speakers can upload their presentations to a central server, and presentations can then be accessed later in the parallel session rooms.

Information on bus schedules

There are a number of bus lines that connect the University campus
From Enschede railway station take either bus 1 to Kennispark/UT, or bus 8 or 9 to Hengelo, which stops on the main road close to the main entrance to the campus (see map)
From Enschede Kennispark railway station take bus 1 to Kennispark/UT.
From Hengelo railway station take either bus 8 or 9 to Enschede, which stops on the main road close to the main entrance to Kennispark/UT.

For all public transport schedules,
see http://9292.nl/en

Emergency contact information

If you need assistance or have an emergency, best refer to the main Waaier reception desk.

Internet access information

Participants with an Eduroam account have internet access throughout campus. Those without can obtain login credentials at the reservation desk.

Printing facilities

There is a print shop in the Carré building (near the parallel session rooms) where prints of any kind (including posters) can be arranged.

Information for oral presentations

Speakers need to upload presentations in the conference secretariat as early as possible. Reminder: presentations will be videotaped and later on placed on the website –speakers that do not agree with this need to inform the organizers.

Information for poster presentations

Poster boards are of A0 format (119 cm x 84 cm). Posters should be put up between 8:00 and 9:00, and taken down after 18:00 on the day the poster is scheduled. Posters submitted for printing can be picked up at the registration desk (the printing fee of 20 Euro per poster should be paid in cash at the registration desk).

Information about the reception by Enschede Municipality

The reception is co-hosted by Enschede Municipality, and will take place on Wednesday, 14 September, at 19:00, in the DesignLab (refer to map).

Information about the conference dinner (Thursday, 15 September, 19:30 Faculty Club, refer to map)

The conference dinner is included in the registration cost (for registered conference participants). It will take place on Thursday, 15 September, at 19:30, in the Faculty Club on campus (refer to map).

Social excursion

Please note that due to the low number of interested people the excursions may need to be cancelled. At press time we are still exploring options to have a sign-up sheet for still interested delegates at the registration desk.

Trip to Amsterdam

- Departure from University of Twente campus at 8:00 (departure location to be announced later)
- Arrival back in Enschede at around 22:00

Trip to Muenster

- Departure from campus at 8:00
- Arrival back in Enschede at around 18:00

For more details about the trips and visit itinerary see the Geobia website.

Detailed Program

Wednesday, 14 September 2016

9:00 - 10:45

Opening and Keynote

Ed Parsons

Location: Waaier 2

11:15 - 13:00

Trimble Session

Location: Waaier 2

14:15 - 16:00

Seg: Segmentation
Location: Carre 2M
Chair: Jagannath Aryal

InterSeg: A Distributed Image Segmentation Tool
Happ, Patrick Nigri; Ferreira, Rodrigo da Silva; Costa, Gilson Alexandre Ostwald Pedro da; Feitosa, Raul Queiroz; Bentes, Cristiana; Farias, Ricardo; Achanccaray, Pedro...

Segmentation Optimization In Object-Based Image Analysis Through Recognizing Patterns Between PSE-NSR-ED2 Discrepancy Measure And Scale Parameter
Liu, Yong; Zhang, Yindan; Huang, Zhe; Wang, Miaomiao; Yang, Dong; Ma, Hongmei; Zhang, Yongxu; Li, Yanfu; Li, Hongwei; Hu, Xiaogang

Automated Segmentation Parameter Selection And Classification Of Urban Scenes Using Open-Source Software
Böck, Sebastian; Immitzer, Markus; Atzberger, Clement

Adaptive Morphological Segmentation - Concepts and Python Implementations
Herold, Hendrik; Meinel, Gotthard

Getting The Act Together: Segmentation-Based Land Cover Classification Using RapidEye Imagery And Open Street Map Ancillary Data
Valozic, Luka

Sol: Solutions & Operationalization
Location: Carre 2K
Chair: Cláudia Maria Almeida

Agent Based Image Analysis (ABIA) – preliminary research results from an implemented framework
Peter Hofmann, Vera Andrejchenko, Paul Lettmayer, Manuel Schmitzberger, Michael Gruber, Izzet Ozan, Mariana Belgiu, Thomas Josef Lampoltshammer, Roland Graf, Stefan Wegenkittl, Thomas Blaschke

Enabling Reproducible OBIA with Open-Source Software in Docker Containers
Knoth, Christian; Nüst, Daniel

Massive Dataset Processing
O'Neil-Dunne, Jarlath; MacFaden, Sean; Ahles, Noah

DLM-Update - Integration of earth observation technologies in IT structures of the national mapping authorities in an use case: Update of the ATKIS®-DLM of the State Bureau of Surveying and Geoinformation Schleswig-Holstein
Völker, Andreas; Gerschwitz, Andreas; Bicsan, Alexandra; Fischer, Michael; Klink, Adrian; Lucas, Christian; Müller, Sönke; Müterthies, Andreas; Schmidt, Carsten; Stock...

An Object-Based Image Interpretation Application on Cloud Computing Infrastructure
Antunes, Rodrigo R; Happ, Patrick N; Bias, Edilson S; Brites, Ricardo S; Costa, Gilson A O P; Feitosa, Raul Q

Veg-1: Vegetation I
Location: Carre 2L
Chair: Ioannis Gitas

Comparison of Individual Tree Delineation Using High Resolution Multispectral Image and Lidar Data
Xiao, Pengfeng; Kelly, Maggi; Guo, Qinghua; Ma, Qin

Three-year assessment of the space-time dynamics of burned forest in the Brazilian Amazon, state of Mato Grosso
Souza, Eliana de; Beuchle, René; Grecchi, Rosana Cristina; Achard, Frédéric

Object-based burnt areas detection method based on Landsat images – step forward automatic global high resolution mapping
Aleksandrowicz, Sebastian; Woniak, Edyta

Agricultural Cropland Mapping Using Conventional Black-and-white Aerial Photography, Object-Based Image Analysis And Random Forests
Vogels, M.F.A.; de Jong, S.M.; Sterk, G.; Addink, E.A.

Mapping Greenhouse Gas Emissions and Removals From The Land Use, Land Use Change, and Forestry Sector at the Local Level
Mitri, George; Karam, Jessica

16:30 - 18:00

Poster-1-Class: Poster Session I Classification & change detection Location: Poster Area 1

Quantifying Land Cover Change using an automated object-based workflow for the analysis of rainfall-induced shallow landslides
Kamps, Martijn; Zieher, Thomas; Seijmonsbergen, Arie Christoffel; Rutzinger, Martin

Susceptibility Mapping of Linear Erosion Processes Using Object-Based Analysis of VHR Images
Passo, Denilson P; Bias, Edilson S; Brites, Ricardo S; Costa, Gilson A O P; Antunes, Rodrigo R

Object-Based VHSR Image Classification Using Multiband Compact Texture Unit Descriptor
Djerriri, Khelifa; Safia, Abdelmounaime; Cheriguene, Rabia Sarah; Rahli, Hamida Samiha; Karoui, Moussa Sofiane

Aplication of object-based Accuracy Assessment for Land Cover Classification using RapidEye Images in the Southeastern Brazil
Prado, Daniel Fernando Costa; Carvalho, Luis Marcelo Tavares de Carvalho

Pairing Semantics and Object-based Image Analysis for National Terrain Mapping - A First-Case Scenario of Cirques
Arundel, Samantha

Landcover extraction using Landsat time series 1972-2014: application to the Syr-Daria Region (Uzbekhistan)
Akmalov, Shamshodbek; Masson, Eric; Blanpain, Olivier

Object-oriented Land cover mapping in national geographical conditions census
Zhai, Liang; Sang, Huiyong; Qiao, Qinghua

Land Use/Cover Mapping By Hierarchical Object-Oriented Classification Of Hyperspectral And LiDAR Data fusion
Kiani, Kamel; Mojaradi, Barat; Esmaeily, Ali; Etesami, Nazanin

Multivariate Analysis in the selection of descriptors for classification oriented to geographic object
Antunes, Dinameres Aparecida; Ribeiro, Selma Regina Aranha

Characterization of the Land-cover and Land-use by Shape Descritors in two areas in Ponta Grossa, PR, BR
Aranha Ribeiro, Selma Regina; Hamulak, Thays Marcela

Land Cover And Land Use Characterization With Geobia In The Pitangui River Basin Area, Paraná-Brazil
Prichoa, Carla Eva; Aranha Ribeiro, Selma Regina; Holgado, Pedro Molina

ArchaeOBIA: a quantitative image analysis of Palaeolithic artifacts
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Poster-1-Seg: Poster Session I Segmentation Location: Poster Area 2

Prediction of Optimal Segmentation Scale on a Per-Class Basis Using Combined Thematic and Spatial Metrics
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Assessing Edge And Area Metrics For Image Segmentation Parameter Tuning And Evaluation
Meyer, Helgard; Van Niekerk, Adriaan

First experiments using the Image Foresting Transform (IFT) algorithm for segmentation of remote sensing imagery
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Multispectral Image Segmentation Based On Cartesian Complexes And Their Associated Oriented Matroids
Valero Medina, José Antonio; Lizarazo, Iván; Arbeláez, Pablo

Identifying Suitable Segmentation Parameters For An Object-based Image Classification
Atzberger, Clement; Immitzer, Markus; Böck, Sebastian; Schultz, Bruno; Vuolo, Francesco

Object-Based Image Analysis based on A Region-Line Primitive Association Framework
Wang, Min; Wang, Jie

Superpixels: The End of Pixels in OBIA. A Comparison of State-of-the-art Superpixel Methods for Remote Sensing Data
Csillik, Ovidiu

Poster-1-Sol: Poster Session I Solutions & operationalisation Location: Poster Area 3

Integration of Open-Source Tools for Object-Based Monitoring of Urban Targets
Antunes, Rodrigo R; Bias, Edilson S; Brites, Ricardo S; Costa, Gilson A O P

Supported mapping with multi sensor images through strategy focused on customization and integration of generalized classes by GEOBIA
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An Object-Based Knowledge Model for a Distributed Image Interpretation Platform
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How To Effectively Obtain Metadata From Remote Sensing Big Data?
Körting, Thales Sehn; Namikawa, Laercio; Fonseca, Leila; Felgueiras, Carlos

RSOBIA - A new OBIA Toolbar and Toolbox in ArcMap 10.x for Segmentation and Classification.
Le Bas, Tim

19:00 - 20:30

Reception

Location: Campus - Design Lab

Detailed Program

Thursday 15 September 2016

9:00 - 10:45

Keynotes Wolfgang Förstner and Lorenzo Bruzzone

Location: Waaier 2

11:15 - 13:00

Class: Classification
Location: Carre 2M
Chair: Martin Weinmann

Dynamic Objects: Unravelling Vegetation Patterns In A Highly Dynamic Fluvial Environment
Addink, Elisabeth A; Douma, Harke; Duindam, Yaël T; Kleinhans, Maarten G

Using Pure and Mixed Objects in the Training of Object-Based Image Classifications
Costa, Hugo; Foody, Giles; Boyd, Doreen

From Classification Results To Topographic Maps
Höhle, Joachim

Object-based Integrated Landscape Change Analysis: synergy of multi-temporal LiDAR and very high resolution orthophotos
Kamps, Martijn; Seijmonsbergen, Arie Christoffel; Bouten, Willem

National Fuel Type Mapping methodology using Geographic Object - Based Image Analysis and Landsat 8 OLI imagery
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Mach-1: Machine Learning & Automation I
Location: Carre 2K
Chair: Wolfgang Förstner

DropBand: A Convolutional Neural Network with Data Augmentation for Scene Classification of VHR Satellite Images
Yang, Naisen; Tang, Hong; Sun, Hongquan; Yang, Xin

On The Usability Of Deep Networks For Object-Based Image Analysis
Audebert, Nicolas; Le Saux, Bertrand; Lefèvre, Sébastien

Deep Learning for Superpixel-based Classification of Remote Sensing Images
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Combining OBIA with Computer Vision - How object-based image analysis can be leveraged by pattern matching techniques to find complex shape objects.
Jasvilis, Gediminas

How To Get To The Most Accurate Results With UAS - a System Approach
Hoffmann, Christian

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Location: Carre 2L
Chair: Stefan Christian Lang

Template Matching To Support Earth Observation Based Refugee Camp Analysis In Obia Workflows - Creation And Evaluation Of A Dwelling Template Library For Improving Dwelling Extraction Within An Object-Based Framework
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Scene Classification Of Urban Areas Exploiting Multi-view High Resolution Aerial Images
Nex, Francesco; Dalla Mura, Mauro

Uncertainties In Analysing The Transferability Of The Generic Slum Ontology
Pratomo, Jati; Kuffer, Monika; Martinez, Javier; Kohli, Divyani

Detection of photovoltaic installations in RGB aerial imaging: a comparative study
Puttemans, Steven; Van Ranst, Wiebe; Goedemé, Toon

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Acc: Accuracy & Time Series
Location: Carre 2M
Chair: Thomas Blaschke

Map Legend And Response Design: How Do They Affect Accuracy Of GEOBIA Result
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Assessing Downscaling Limits Of Spatial Resolution For AWiFS And LANDSAT 8 Data As Compared To LISS IV
Chauan, Akansha; Denis, Derrick Mario; Kumar, Mukesh

Assessing Uncertainties Associated With Digital Elevation Models For Object Based Landslide Delineation
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Towards a Typology of Land Cover Evolutions Using High Resolution Satellite Image Time Series: Application to the Metropolitan Area of Strasbourg (France)
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Sem: Semantics
Location: Carre 2K
Chair: Peter Hofmann

Automated Near Real-Time Earth Observation Level 2 Product Generation for Semantic Querying
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3D Semantic Labeling of ALS Point Clouds by Exploiting Multi-Scale, Multi-Type Neighborhoods for Feature Extraction
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Semantic Segmentation of Settlement Patterns in Gray-scale Map Images Using RF and CRF within an HPC environment
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Semantic classification of urban buildings combining VHR images and GIS data
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UAV: UAV Data & Point Clouds
Location: Carre 2L
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Robust and Repeatable Ruleset Development for Hierarchical Object-Based Monitoring of Revegetation Using High Spatial and Temporal Resolution UAS Data.
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River floodplain vegetation classification using multi-temporal high-resolution colour infrared UAV imagery
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Small scale landform mapping by integrated optical (2D) and terrain (3D) UAV data
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Map Based Segmentation Of Airborne Laser Scanner Data
Wang, Yancheng; Oude Elberink, Sander

Aerial Image Based Geometric Refinement Of Building Models Derived From Airborne Lidar Data.
Jarzbek-Rychard, Małgorzata; Maas, Hans-Gerd

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Poster-2-Novel: Poster Session II
Novel OBIA applications
Location: Poster Area 1

Application Of GEOBIA To Map The Seafloor
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A Segmentation Approach to Delineate within-Field Zones for Differential Potash Interventions.
Oliveira, Ronaldo Pereira de; Benites, Vinicius de Melo

Using Object-Based Image Analysis to support crowdsourcing
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Local Climate Zone Mapping: A Case Study In Belgium
Verdonck, Marie-Leen; Van Coillie, Frieke

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Diofantos G. Hadjimitsis, Athos Agapiou, Kyriakos Themistocleous, Branka Cuca, Argyro Nisantzi, Rosa Lasaponara, Gabriele Nolle, Biagio Tucci, Nicola Masini, Thomas Krauss, Daniele Cerra, Ursula Gessner, Gunter Schreier

Applying Geobia method to analyze climate changes associated to energy generation - analysis about oil exploration onshore at Potiguar Basin
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Poster-2-UAV: Poster Session II
UAV and lidar point clouds
Location: Poster Area 2

Synergy Between Aerial Imagery And Low Density Point Cloud For Automated Image Classification And Point Cloud Densification
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Automatic Building Extraction from Airborne LiDAR Point Cloud Based on MeanShift Segmentation
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Assessing The Capacity Of Point Cloud Analysis To Improve Object-Based Agricultural Land Cover Classification Using Discrete LiDAR Data In Cabadbaran, Agusan Del Norte, Philippines
Rollan, Therese Anne Montañez; Blanco, Ariel

Fusion Of Optical And Lidar Images For Urban Objects Recognition
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Using Spatial Point Pattern Analysis as Supplement for Object Based Image Classification of Trees
Tañada, Eric Luis Madamba; Blanco, Ariel

Automatic Recognition of Urban Objects using both Airborne LiDAR Points Cloud and Imagery
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Fitting Point' s Cloud From Laser Profiling To The Vectorization Of Buildings In Informal Settlements
Temba, Plinio; Botelho, Lucas Magno Rocha; Nero, Marcelo Antonio; Nogueira, Julia Couto

3-D object-based feature extraction from 3-stereo DSM in urban context
Kulessa, Kerstin; Lang, Stefan

Poster-2-Urb: Poster Session II
Urban
Location: Poster Area 3

Robustness Of Rule Sets Using VHR Imagery To Detect Informal Settlements – A Case Of Mumbai, India
Naorem, Vichyson; Kuffer, Monika; Verplanke, Jeroen; Kohli, Divyani

Historic Aerial Photographs and Object-based Image Processing for a 3D Settlement Model Generation, Buildings Delineation and Landscape Change Analysis
Veljanovski, Tatjana; Kokalj, Žiga

Replacing The Use Of Texture And Sealed Area In Urban Fabric Classifications By Integration of Volume And Object Based Distance Calculations.
de Kok, Roeland; Wezyk, Piotr; Hejmanowska, Beata; Ksiek, Judyta

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Conference Dinner
Location: Faculty Club

Friday 16 September 2016

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Keynote Giles Foody
Location: Waaier 2

9:45 - 10:45

Plenary session
"Solutions & Synergies"
Location: Waaier 2

11:15 - 13:00

Poster-3-Mach: Poster Session III
Machine learning & automation
Location: Poster Area 1

A Pure Object-based Hierarchical Conditional Random Field Model for Semantic Classification of High Resolution Remote Sensing Imagery
Yang, Yun

Combining Feature-Space Euclidean Norm Transformation And Allometric Aggregation Data Analysis In Intensifying Machine Learning Algorithm For Classification Of Dominantly Agricultural Landcover
Pelayo, Jigg Lomarda; Villar, Ricardo

A Segmentation – Recognition Integrative Model For Classification By Fusing Both PAN And MS Images
Mao, Ting; Tang, Hong; Shu, Yang; Yang, Naisen

Comparing Machine Learning Classifiers for Object-Based Land Cover Classification Using Very High Resolution Imagery
Qian, Yuguo

An Object-based Semantic Classification Method of High Resolution Satellite Imagery Using Ontology
Gu, Haiyan; Li, Haitao; Yan, Li; Blaschke, Thomas

Poster-3-Veg: Poster Session III
Vegetation
Location: Poster Area 2

Forest Cover Change Analysis by Object Based Method using SPOT and RapidEye Images
Gao, Yan; Gonzalez, Ignacio; Lopez-Sanchez, Jairo Gabriel; Skutsch, Margaret; Paneque-Galvez, Jaime; Mas, Jean Francois

Satellite Based Multi-scale Methods to support the governance of the Low-carbon Agriculture Plan (ABC Plan)
Simoes, Margareth; Ferraz, Rodrigo; Bégué, Agnes; Bellon, Beatriz

Mapping urban vegetation functional types integrating phenology-based classification with WorldView-2 imagery
Yan, Jingli; Zhou, Weiqi

Development of a knowledge driven Rule Set for Classification of Submerged Aquatic Vegetation (SAV) in a Clear Water Stream: Where do you draw the boundaries...?
Visser, Fleur; Buis, Kerst; Verschoren, Veerle; Schoelynck, Jonas

Detection And Monitoring Of Deforestation Objects In The Colombian Amazon Rainforest
Espejo, Javier; Lizarazo, Ivan; Galindo, Gustavo; Cabrera, Edersson

Value of Feature Reduction for Crop Differentiation Using Multi-Temporal Imagery, Machine Learning, and Object-Based Image Analysis
Gilbertson, Jason; Van Niekerk, Adriaan

Detecting Atlantic Forest Patches Applying GEOBIA And Data Mining Techniques
Girolamo Neto, Cesare Di; Pessôa, Ana Carolina Moreira; Körting, Thales Sehn; Fonseca, Leila Maria Garcia

Monitoring of Invasive Knotweeds (Fallopia sp.) Using UAV and Satellite Imagery
Brna, Josef; Vítková, Michaela; Bartaloš, Tomáš; Dvoák, Petr; Müllerová, Jana

Calibration and validation of vegetation height and canopy cover estimation with combination of PALSAR and Landsat imageries for a tropical upstream catchment in Indonesia
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Poster-3-Water: Poster Session III Water
Location: Poster Area 3

Mapping lakes on the Tibetan Plateau with LANDSAT imagery and object-based image analysis
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Decision Tree Classification Model For Detecting And Tracking Precipitating Objects From Series Of Meteorological Images
Ramirez, Salomon; Lizarazo, Ivan

Coastal Changes And Movements On The Albanian Riviera
Kanjir, Ursa; Gregoric Bon, Natasa

Abject Based Image Analysis Approach For Monitoring Snow Cover And Forecasting Water Discharge In Sahand Mountain, Iran
Feizizadeh, Bakhtiar; Seyfei, Hooshang; Fatmei, Majid; Pourmoradian, Samereh

14:15 - 16:00

Mach-2: Machine Learning & Automation II
Location: Carre 2K
Chair: Sébastien Lefèvre

Web-based Platform for Remote Sensing Image Annotation through Active Learning Approach
Garcia-Pedrero, Angel Mario; Gonzalo-Martín, Consuelo; Lillo-Saavedra, Mario; Ortíz-Toro, César

A Deep Learning Approach for Urban Land Cover Classification from High-Spatial Resolution Imagery and Geomorphometric Variables
Lizarazo, Ivan; Ramirez, Salomon

Towards Automated Satellite Image Segmentation and Classification for Assessing Disaster Damage Using Data-specific Features with Incremental Learning
Vetrivel, Anand; Kerle, Norman; Gerke, Markus; Vosselman, George

An Open-Source Semi-Automated Processing Chain For Urban OBIA Classification
Grippa, Taïs; Lennert, Moritz; Beaumont, Benjamin; Vanhuysse, Sabine; Stephenne, Nathalie; Wolff, Eléonore

Automatic Detection of Landslides in Object-Based Environment Using Open Source Tools
Gorthi, Sai Subrahmanyam; Martha, Tapas Ranjan; Mishra, Deepak; Nidamanuri, Rama Rao; V S, Veena

MultiSc: Multi-Scale Analysis
Location: Carre 2M
Chair: Lucian Dragut

Combining Multiple Resolutions into Hierarchical Representations for kernel-based Image Classification
Cui, Yanwei; Lefèvre, Sébastien; Chapel, Laetitia; Puissant, Anne

Quantifying Bush Fire Mapping Uncertainty Using Multi-scale Approach: a Case Study from Tasmania, Australia
Aryal, Jagannath

Improving the Speed of Multiresolution Segmentation Using SLIC Superpixels
Csillik, Ovidiu; Lang, Stefan

Object-Based Symmetric Difference for Land Surface Segmentation Scale Parameter Optimisation
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Veg-2: Vegetation II
Location: Carre 2L
Chair: Frieke Marthe Bert Van Coillie

Using LIDAR And Aerial Photography To Build A Geographic Object Database Tuned For Ecological Model
Radoux, Julien; Defourny, Pierre

Detection, Segmentation and Localization of Individual Trees from MMS Point Cloud Data
Weinmann, Martin; Mallet, Clément; Brédif, Mathieu

Modelling forest fire danger in Lebanon with the combined use of socio-economic and biophysical variables in object-based image analysis
Mitri, George; Antoun, Edward; Saba, Sabine; McWethy, David

Mangrove Classification Using Support Vector Machines and Random Forest Algorithm: A Comparative Study
Campomanes, Florencio V Puno; Pada, Ariadne Victoria Simbahon; Silapan, Judith Ramos

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Location: Waaier 2

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MY TOUCH CONTRIBUTING TO URBAN PLANNING DECISION PROCESSES

JOSE ANDRES MORALES,
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