AGILE 2019

22nd AGILE Conference on Geographic Information Science
Geospatial Technologies for Local and Regional Development

June 17-20, 2019, Limassol Cyprus

Cyprus University of Technology (CUT) – Department of Civil Engineering and Geomatics

Detailed Programme
Final version: June 11 2019

MONDAY, JUNE 17, 2019

Workshop activities (& registration) take place at CUT's Andreas Themistocleous Bldg.

Mon 17/06 – Registrations	**8:00 – 9:00**	**@CUT**

Mon 17/06 – Welcome Notes	**9:00 – 9:15**	**@CUT**

Room: Pefkios Georgiades -- Andreas Themistocleous Bldg.

Phaedon Kyriakidis, Dean of Faculty of Engineering and Technology, CUT

Dimitrios Skarlatos, CUT (Workshop Chair)

Mon 17/06 – Workshops	**9:15 – 18:30**	**@CUT**

Coffee break: 11:00 – 11:30; Lunch break: 13:30 – 14:30; Coffee break: 16:00 – 16:30

Room: Keryneia / Ammochostos – Andreas Themistocleous Bldg.

Reproducible Research (RR@AGILE)

> *Daniel Nüst, Frank Ostermann, Barbara Hofer, Rusne Sileryte and Carlos Granell*

Room: Lemesos

GeoCultGIS – Geographical and Cultural aspects of Geo-data: Issues and Solutions

> *Tessio Novack, Yair Grinberger, Michael Schultz, Alexander Zipf and Peter Mooney*

Room: Computer Room

R for Geovisualization, Geoprocessing and Geoanalytics

> *Alexis Comber, Phaedon Kyriakidis and Dimitris Kavroudakis*

Room: Lefkosia

Towards Open Spatial Data Infrastructures (half day)

> *Bastiaan van Loenen, Ulrike Klein, Ali Mansourian and Drazen Tutic*

Mon 17/06 – Ice-Breaker Reception	**18:30 – 20:30**	**@CUT's Tassos Papadopoulos Bldg.**

Mon 17/06 – ESRI Workshop Reception	**20:30 – 22:30**	**@The LAB**

TUESDAY, JUNE 18, 2019

Tue 18/06 – Registrations	8:00 – 9:00	@Carob Mill

Tue 18/06 – Welcome Notes	9:00 – 9:30	@Carob Mill

Diofantos Hadjimitsis, Vice-Rector for Academic Affairs, CUT
Martin Raubal, AGILE Co-Chair, ETH Zurich
Phaedon Kyriakidis, Dean of Faculty of Engineering and Technology, CUT

Tue 18/06 – Plenary Session	9:30 – 11:00	@Carob Mill

9:30 – 10:30: Keynote Presentation

Are we ready for mobility as a service? – Big urban data say Yes!

> *Itzhak Benenson*

10:30 – 11:00: Special Presentation

ERATOSTHENES: A forthcoming, H2020 funded, research Centre of Excellence for Earth surveillance and space-based monitoring of the environment

> *Diofantos Hadjimitsis*

Coffee Break @Carob Mill 11:00 – 11:45, then walk to CUT

All parallel sessions take place at CUT's Tassos Papadopoulos Bldg.

Presentation time (with questions & answers): Full paper (FP): 30min; Short paper: 20min

Tue 18/06 – Parallel Session #1	12:00 – 13:30	@CUT

Tue-PS1-A: Geographic Information, Representation, Retrieval and Visualisation
Room #6; Chair: Werner Kuhn

A context frame for interactive maps
> *Andrea Ballatore*

The impact of indoor/outdoor context on smartphone interaction during walking
> *Jakub Krukar and Antonia van Eek*

Web-based visualization of big geospatial vector data (FP)
> *Florian Zouhar and Ivo Senner*

Can Reproducible and replicable research facilitate causal explanation in Geography?
> *Peter Kedron*

Tue-PS1-B: Urban/Regional Modelling and Applications
Room #3; Chair: Demetris Demetriou

Enhancing the use of population statistics derived from mobile phone users by considering building-use dependent purpose of stay (FP)

    Toshihiro Osaragi and Ryo Kudo

Evaluating walkability with WalkMyPlace - Five reasons why the utility of Walkscore.com may be limited in South America

    Stefan Steiniger, Carolina Rojas and Giovanni Vecchio

Study of the relationship between rental house prices and people congestion of urban areas based on mobile phone GPS data

    Yinglan Qin, Yuki Akiyama, Yoshiki Ogawa, Ryosuke Shibasaki and Ritsu Sakuramachi

How is multiscale accessibility related to population, functional and socio-economic characteristics of settlements: The case of Israel

    Nir Kaplan, David Burg and Itzhak Omer

Tue-PS1-C: Navigation, Routing and Spatial Optimisation
Room #1; Chair: Ioannis Giannopoulos

Investigating geomagnetic bird navigation: 4D data fusion of co-located GPS and magnetometer data

    Urska Demsar

Route optimisation for winter maintenance (FP)

    Nikmal Raghestani and Carsten Keßler

An adaptable and scalable least cost network for air-taxis in urban areas – Study area: Manhattan, New York

    Moritz Hildemann and Carlos Delgado

Using GIS and open Web resources to reconstruct XuanZang travel routes and Great Tang records of the Western Regions, China

    Zhaohui Fu and Sheyla De Santana

Lunch Break @CUT 13:30-14:30

Tue-PS2-A: Spatial Data Infrastructures (SDI) and Services
Room #3; Chair: Ali Mansourian

Guerrilla badges for reproducible geospatial data science
> *Daniel Nüst, Lukas Lohoff, Lasse Einfeldt, Nimrod Gavish, Marlena Götza, Shahzeib Tariq Jaswal, Salman Khalid, Laura Meierkort, Matthias Mohr, Clara Rendel and Antonia van Eek*

Environmental Data Platform (EDP) – A solution to work with big data, standardized and reproducible
> *Andrea Vianello, Armin Costa, Bartolomeo Ventura, Roberto Monsorno, Simone Tritini, Daniele Antonucci and Alexander Jacob*

On-the-fly edge-matching for cascaded service content
> *Pekka Latvala, Lassi Lehto and Samuli Kytö*

A next-generation geospatial catalogue: A proof of concept
> *Sergio Martín Segura, Francisco J Lopez-Pellicer, Juan Valiño García and F. Javier Zarazaga-Soria*

Tue-PS2-B: Mobility and Transportation
Room #6; Chair: Itzhak Benenson

A clustering-based framework for understanding individuals' travel mode choice behavior (FP)
> *Pengxiang Zhao, Dominik Bucher, Henry Martin and Martin Raubal*

Classification of urban and rural routes based on motorcycle riding behaviour (FP)
> *Gerhard Navratil, Ioannis Giannopoulos and Gilbert Kotzbek*

Route choice decisions of e-bike users: Analysis of GPS tracking data in the Netherlands (FP)
> *Gamze Dane, Tao Feng, Floor Luub and Theo Arentze*

Tue-PS2-C: Geoinformation and Machine Learning
Room #1; Chair: Phaedon Kyriakidis

Machine learning of spatiotemporal processes: investigating livestock changes in Mongolia with LSTM recurrent neural networks
> *Lex Comber, Alison Heppenstall, Taro Takahashi, Naru Tsutsumida and Paul Harris*

Estimating map missing built-up areas using pre-trained Deep Neural Networks
> *Hao Li, Benjamin Herfort and Alexander Zipf*

Deep learning geodemographics with autoencoders and geographic convolution
> *Stefano De Sabbata and Pengyuan Liu*

Acquisition of urban trees using Artificial Neural Networks and remote sensing data
> *Amelie Haas, Pierre Karrasch and Lars Bernard*

Tue-PS2-D: Volunteered Geographic Information / Social Media
Room #2; Chair: Carsten Keßler

Online data reliability for monitoring tourism activities in cities
　　Luis Encalada, Jorge Rocha and Carlos C. Ferreira

Tracing tourism geographies with Google Trends: A Dutch case study (FP)
　　Andrea Ballatore, Simon Scheider and Bas Spierings

Analysis of Flickr, Snapchat, and Twitter use for the modeling of visitor activity in Florida state parks
　　Hartwig Hochmair and Levente Juhász

Introducing social distance to ST-DBSCAN
　　Olga Yanenko

Coffee Break @CUT 16:00-16:30

Tue 18/06 – Parallel Session #3	16:30 – 17:45	@CUT

Tue-PS3-A: Geographic Information, Representation, Retrieval, Visualisation
Room #3; Chair: Andrea Ballatore

Evaluating the effectiveness of embeddings in representing the structure of geospatial ontologies (FP)
　　Federico Dassereto, Laura Di Rocco, Giovanna Guerrini and Michela Bertolotto

Reflective practice: Lessons learnt by using board games as a design tool for Location-Based Games (FP)
　　Catherine Jones and Konstantinos Papangelis

Tue-PS3-B: Spatial Agent-Based Modelling
Room: #6; Chair: Dimitris Kavroudakis

Who will be served by the Shared-Automated-Vehicle?
　　Golan Ben-Dor, Eran Ben-Elia and Itzhak Benenson

Agent-based simulation of pedestrian movement in urban environments
　　Martin Knura

Agent-based simulation for indoor manufacturing environments – Evaluating the effects of spatialization (FP)
　　Stefan Kern and Johannes Scholz

Tue 18/06 – Poster Session	17:45 – 18:30	@CUT

Tue 18/06 – Conference Reception	19:00 – 21:00	@Carob Mill

WEDNESDAY JUNE 19, 2019

Wed 19/06 – Registrations	8:00 – 9:00	@Carob Mill

Wed 19/06 – Plenary Session	9:00 – 10:00	@Carob Mill

<u>Keynote Presentation:</u> Remote sensing of the impact of environmental shocks on local and regional livelihood adaptation in India

Peter Atkinson

Wed 19/06 – Special Session	10:00 – 11:00	@Carob Mill

AGILE General Meeting
Open only to AGILE members

Coffee Break @Carob Mill 11:00 – 11:45, then walk to CUT

Wed 19/06 – Parallel Session #1	12:00 – 13:30	@CUT

Wed-PS1-A: Geographic Information, Representation, Retrieval and Visualisation
Room #6; Chair: Michael Gould

Potential of crowdsourced traces for detecting updates in authoritative geographic data (FP)
> *Stefan S. Ivanovic, Ana-Maria Olteanu-Raimond, Sébastien Mustière and Thomas Devogele*

Generalization of geological maps: Aggregation and typification of polygon groups
> *Azimjon Sayidov and Robert Weibel*

Determining point locations of places by using area datasets
> *Thomas Brinkhoff*

On the problem of providing unique identifiers for areas with any shape on Discrete Global Grid Systems
> *Rubén Béjar, Miguel Ángel Latre, Francisco J Lopez-Pellicer, Javier Nogueras-Iso and F. Javier Zarazaga-Soria*

Wed-PS1-B: Urban/Regional Modelling and Applications
Room #3; Chair: Alexis Comber

Residential interrelationship: The case study of the Sylheti and Dhaka communities of Whitechapel
> *Flint Shlomit*

A scalable analytical framework for spatio-temporal analysis of neighborhood change: A sequence analysis approach (FP)
> *Nikos Patias, Francisco Row and Stefano Cavazzi*

Estimating the spatial distribution of vacant houses using public municipal data (FP)
> *Yuki Akiyama, Akihiro Ueda, Kenta Ouchi, Natsuki Ito, Yoshiya Ono, Hideo Takaoka and Kohta Hisadomi*

Wed-PS1-C: Earth Observation Applications

Room #1; Chair: Peter Atkinson

Monitoring urbanization dynamics in Cyprus using time-series DMSP/OLS Nightlight Imagery

    Stylianos Hadjipetrou and Demetris Stathakis

Random forest classification analysis of Sentinel-2 and Landsat-8 images over semi-arid environment in the Eastern Mediterranean

    Stavros Patsalidis, Athos Agapiou and Diofantos G. Hadjimitsis

Utilization of Tandem-X data to identify the potential trigger of the 2018's Sunda Strait Tsunami in Indonesia

    Winhard Tampubolon and Wolfgang Reinhardt

Training samples from open data for satellite imagery classification: Using K-means clustering

    Cláudia M. Viana, Inês Girão and Jorge Rocha

Lunch Break @CUT 13:30-14:30

Wed 19/06 – Parallel Session #2	14:30 – 16:00	@CUT

Wed-PS2-A: Spatial Data Infrastructures (SDI) and Services

Room #6; Chair: Chris Danezis

Civil Protection 2.0: A diagram-based approach for managing an emergency plan

    Monica Sebillo, Giuliana Vitiello, Michele Risi, Michele Grimaldi and Dimitri Dello Buono

Interoperable management of glider sensor data

    Matthes Rieke, Simon Jirka, Daniel Hayes, Justin H. Buck and Ehsan Abdi

An event-driven architecture based on Copernicus satellite data for water monitoring

    Sebastian Drost, Matthes Rieke, Simon Jirka, Arne Vogt, Verena Rabea Kirstein and Andreas Wytzisk

The TN-ITS platform: Creating a seamless data-exchange on changes in critical road network related spatial data between road authorities and map providers in Cyprus

    Georgios Christou, Andreas Georgiou, Christos Panayiotou and Aristotelis Savva

Wed-PS2-B: Mobility and Transportation

Room #3; Chair: Urska Demsar

Implications of incomplete GPS-enabled mobile phone data on human mobility studies

    Enki Yoo, John Roberts and Youngseob Eum

Identification of the homes, offices, and schools from long-interval mobile phone big data using mobility pattern clustering

    Ryosuke Kobayashi, Satoshi Miyazawa, Yuki Akiyama and Ryosuke Shibasaki

Development of people flow data with individual demographics based on mobile phone GPS Big Data

    Yohshiki Ogawa, Yuki Akiyama and Ryosuke Shibasaki

Classification of street junctions according to traffic regulators

    Stefania Zourlidou, Colin Fischer and Monika Sester

Wed-PS2-C: Environmental Modelling and Applications
Room #1; Chair: Lars Bernard

The relationship between land surface temperature and local climate zone classification: A case study of the canton Geneva, Switzerland
> *Maryam Lotfian, Jens Ingensand, Sarah Composto, Monia Elisa Molinari and Maria Antonia Brovelli*

Improving business-as-usual scenarios in land change modelling by extending the calibration period and integrating demographic data (FP)
> *Romain Mejean, Martin Paegelow, Mehdi Saqalli and Doryan Kaced*

Geostatistical analysis of temperature in the boundary layer using variogram scaling exponents
> *Amy Frazier and Benjamin Hemingway*

Flood risk assessment and mitigation using small unmanned aircraft data
> *Jordan Bates and Tanmoy Chakraborty*

Wed-PS2-D: Earth Observation, Terrain Modeling and Applications
Room #2; Chair: Marek Baranowski

Creating visually consistent DEMs over water bodies using laser scanning data
> *Ville Mäkinen, Juha Oksanen and Tapani Sarjakoski*

InSAR DSM using Sentinel 1 and spatial data creation
> *Vasileios Letsios, Ioannis Faraslis and Demetris Stathakis*

Sampling designs for selecting points from digital surface models to create digital terrain models
> *Philip Fayad, Apostolos Papakonstantinou and Phaedon Kyriakidis*

A GIS-based approach to karst relief cyclicity by using Fast Fourier Transform
> *Tomaž Podobnikar, Mateja Štefančič and Timotej Verbovšek*

Coffee Break @CUT 16:00-16:30

Wed 19/06 – Parallel Session #3	16:30 – 17:45	@CUT

Wed-PS3-A: Geospatial Technologies Workforce
Room #6; Chair: Carlos Granell Canut

Understanding skill needs in the EO/GI sector: a job advertisements analysis
   Wesley Gruijthuijsen, Saudade Pontes, Glenn Vancauwenberghe, Danny Vandenbroucke and Marc Olijslagers

Future occupational profiles in Earth Observation / Geoinformation – Scenarios *Resulting from Changing Workflows* (FP)
   Barbara Hofer, Stefan Lang and Nicole Ferber

Wed-PS3-B: Urban/Regional Modelling and Applications
Room #3; Chair: Marco Painho

Exploring social dynamics: predictive geodemographics
   Jennie Gray, Lisa Buckner and Alexis Comber

Predicting short-term travel demand in bike sharing systems with neural networks
   Yuanxuan Yang, Alison Heppenstall, Andy Turner and Alexis Comber

Market area delineation for airports to predict the spread of infectious disease (FP)
   Carmen Huber and Claus Rinner

Wed 19/06 – Poster Session	17:45 – 18:30	@CUT

Wed 19/06 – Conference Dinner	19:30 – 23:00	@Forsos Tavern

THURSDAY, JUNE 20, 2019

Thu 20/06 – Registrations	8:00 – 9:00	@CUT

Thu 20/06 – Plenary Session	9:00 – 10:00	@CUT – Amph#1

Keynote Presentation: The organization of spatial memory: multiple systems of representation?
   Marios Avraamides

Thu 20/06 – Best Short Paper Nominations 10:00 – 11:15	@CUT – Amph#1

Chair: Martin Raubal

Geographical context in community detection: A comparison of a node-based and a link-based approach
   Sebastijan Sekulić, Jed Long and Urska Demsar

Quantifying how visibility-based land cover and wilderness measures relate to perceived scenicness of landscape
   Yi-Min Chang Chien, Alexis Comber and Steve Carver

Coffee Break @CUT 11:15 – 11:45

Thu 20/06 – Best Full Paper Nominations   **11:45 – 13:30**   **@CUT – Amph#1**

Chair: Marinos Kavouras

Towards a usability scale for participatory GIS

> *Andrea Ballatore, Will McClintock, Grace Goldberg and Werner Kuhn*

Place questions and human-generated answers: A data analysis approach

> *Ehsan Hamzei, Haonan Li, Maria Vasardani, Timothy Baldwin, Stephan Winter and Martin Tomko*

Relaxing unanswerable geographic questions using a spatially explicit knowledge graph embedding model

> *Gengchen Mai, Bo Yan, Krzysztof Janowicz and Rui Zhu*

Thu 20/06 – Closing Session   **13:30 – 14:00**   **@CUT – Amph#1**

Lunch @CUT 14:00-15:00

Posters   **Tue 18/06, 17:45 – 18:30; Wed 19/06, 17:45 – 18:30**   **@CUT**

Tassos Papadopoulos Bldg.; Amphitheatre #2; Chair: Barbara Hofer

Reproducible publications at AGILE conferences – Proposed guidelines for authors and reviewers

> *Barbara Hofer, Karl W. Broman, Carlos Granell, Anita Graser, Kristina Hettne, Daniel Nüst, Frank Ostermann, Rusne Sileryte, Marta Teperek*

GIS-analysis of the technical potential of wind energy in the Netherlands

> *Sebastiaan van Bemmel and Bart Rijken*

Combining network methods with longitudinal data analysis to examine spatio-temporal variation in bike sharing data

> *Sarah Gadd, Alison Heppenstall, Mark S Gilthorpe and Peter Tennant*

A GIS-based spatial multi-criteria decision analysis: Crisp and fuzzy methods

> *Chrysaida-Aliki Papadopoulou and Thomas Hatzichristos*

MARRE: A research project to monitor the Hellenic Seas using remote sensing

> *Konstantinos Topouzelis, Elena Athanasopoulou, Andromachi Chatziantoniou, Athanasia Iona, Aristomenis Karageorgis, Dimitris Kavroudakis, Pantelis Mitropoulos, Apostolos Papakonstantinou, Stella Psarra, Spyros Spondylidis, Panagiotis Symeonidis and Theodoros Vakkas*

Regional agricultural production statistics for 160 years using the geographic information system and the spatial analytical technique

> *Cláudia M. Viana, Dulce Freire and Jorge Rocha*

Model of research of sociodemographic structures

> *Donatas Gudelis*

Identify the backbone structure of highway network System for Chinese 23 urban regions

> *Huiping Liu, Xiangping Liu and Lifu Zheng*

From question to query: GIS for impact assessment
  Rusne Sileryte, Alexander Wandl, Jorge Gil and Arjan van Timmeren

Map generalization based on a superpixel structure
  Yilang Shen and Tinghua Ai

Development of the TATM metadata editor for the documentation of spatial data from the Hellenic area according to INSPIRE directive
  Dimitrios Sarafidis, Faidon Zampoglou and Maria Papadopoulou

Similarity of paths in spatial networks: The case of long-distance athletic events
  Dimitris Kavroudakis, Panagiotis Agourogiannis, Marios Batsaris, Michalis Vaitis, Efstratios Kavroudakis and Panayiotis Kouloumentas

A spatial optimization approach for vector-based land use planning
  Jing Yao and Xiaoxiang Zhang

Semantic enrichment of routing engines using linked data: A case study using GraphHopper
  Junaid Abdul Jabbar and Rizwan Bulbul

A spatiotemporal approach for detecting street intersections
  Stefania Zourlidou, Maximilian Idahl and Monika Sester

Mapping ice cover dynamics in the Curonian Lagoon using remote sensing and geographic information system
  Rasa Idzelytė, Igor Kozlov and Georg Umgiesser

An information system for the detection of water leaks in municipal water networks
  Poulicos Prastacos, Manolis Diamandakis and Manolis Kosmadakis

Evaluation of natural flood management using curve number in the Ciliwung Basin, West Java
  Arif Rohman, Lex Comber and Gordon Mitchell

Cloud based discovery and processing of geospatial data
  Arne Vogt, Andreas Wytzisk, Sebastian Drost and Simon Jirka

Metadata assessment for efficient open data retrieval
  Chiao-Ling Kuo and Han-Chuan Chou

Using weather condition and advanced machine learning methods to predict soccer outcome
  Denny Asarias Palinggi, Francisco Ramos, Joaquín Torres-Sospedra and Sergi Trilles

Feature extraction in parallel with georeferencing for the digitalization of historical maps
  Tyng-Ruey Chuang, Chiao-Ling Kuo, Jheng-Hong Lai, Hsiung-Ming Liao and Huang-Sin Syu

A monocular SLAM method for point cloud geolocation in GPS-denied environments using UASs
  Dimitrios Trigkakis, Dimitris Chatziparaschis, George Petrakis, Achilles Tripolitsiotis and Panagiotis Partsinevelos

Integrated use of machine learning and geostatistics for high resolution mapping of ground-level PM2.5 concentrations
  Guofeng Cao and Ying Liu

Google map locations of AGILE 2019 premises follow on the next page

Workshops (June 17) are held at CUT's **Andreas Themistocleous** building
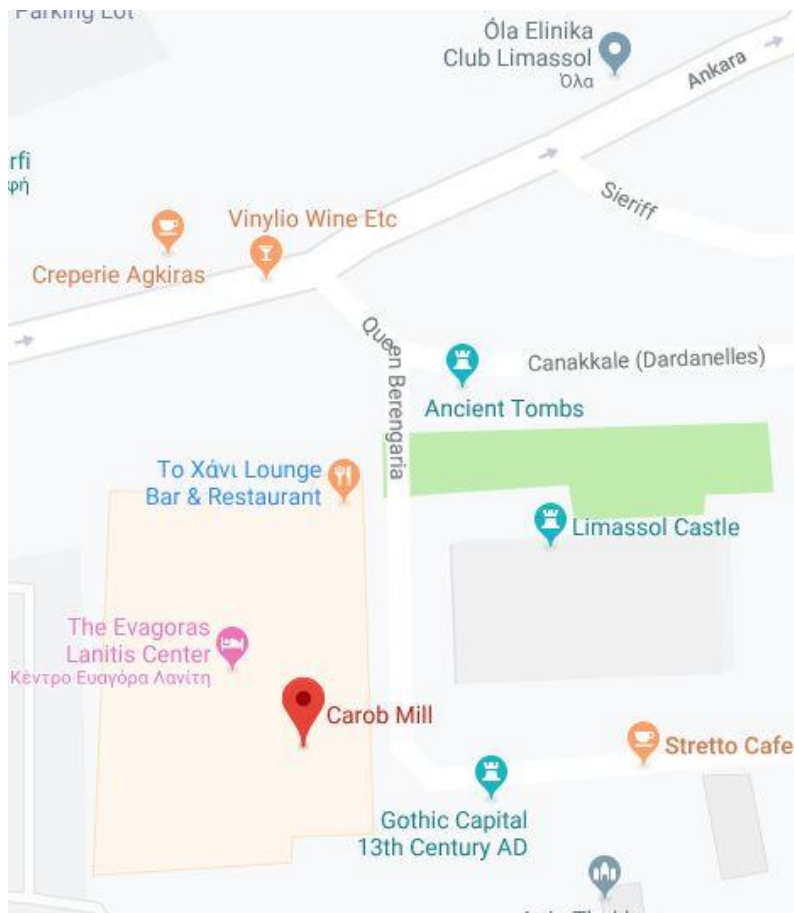
(map location: click here)

ESRI's Workshop Reception (20:30 on June 17) takes place at the **LAB**
(on the parallel road behind T. Papadopoulos building)

(map location: click here)

Morning sessions on June 18-19, as well as the Conference Reception (June 18), take place at the **Carob Mill** (behind Limassol's castle)

(map location: click here)

Ice-Breaker Reception (June 17), all afternoon parallel sessions (June 18-19), as well as all sessions on June 20, take place at CUT's **Tassos Papadopoulos** building

(map location: click here)