AGILE 2022
Artificial Intelligence in the service of Geospatial Technologies
25th Conference on Geo-information science
June 14-17, Vilnius, Lithuania
Vilnius Gediminas Technical University, Department of Geodesy and Cadastre & Institute of Geodesy
Detailed Program

Tuesday, June 14, 2022, Room SRA-I 03 hall, 8:30-14:30	Workshop Registration	Vilnius Tech, Saulėtekio al. 11
		N 54.72211
Preconference Workshops		E 25.33715
Opening, 9:00 - 9:30	Members of Local Organizing Committee **Darius Popovas, Eimuntas Paršeliūnas**	
Workshop, Room SRK-II 102: 9:30 - 13:00, and online (https://liedm.zoom.us/j/81076340125)	Replication in geospatial research	
Workshop, Room SRK-I 313: , 9:30 - 13:00, and online (https://liedm.zoom.us/j/8842288829)	CYBERCARTOGRAPHY 2022: A beyond state-of-the-art role of geovisualization in the understanding of the world	
Workshop, Room SRC 307: , 9:30 - 13:00 (to be continued) and online (https://liedm.zoom.us/j/2969930476)	Geospatial Education – Transitioning from emergency online to a new normal (Erasmus+)	
Coffee Break 11:00-11:30		
Lunch break, 13:00-14:00		
Coffee Break 15:30-16:00		
Workshop, Room SRK-I 313: 14:30-17:30 and online (https://liedm.zoom.us/j/8842288829)	GeoData and Tools for Education and Research	
Workshop (continue), Room SRC 307: 14:00 - 17:30, and online (https://liedm.zoom.us/j/2969930476)	Geospatial Education – Transitioning from emergency online to a new normal (Erasmus+)	
ESRI Reception, 19:30	"Artistai", Šv. Kazimiero g. 3, N 54.67703, E 25.28881	
Wednesday, June 15, 2022, Room SRA-I 03 hall, 8:30-16:00	Registration	Vilnius Tech, Saulėtekio al. 11 N 54.72211 E 25.33715
Opening 9:00 - 9:30, Room SRA 03	Vilnius Tech Vice-Rector **Adas Meškėnas,** Chair of Local Organizing Committee **Eimuntas Paršeliūnas**	
Keynote 9:30-10:30, Room SRA 03	**Ville Sirviö**, Nordic Institute for Interoperability Solutions **, Forecasting the future of data exchange**	
Coffee Break 10:30-11:00		
Parallel Sessions 1, 11:00-12:30		
Session 1a, Room SRA-I 03:	**GeoAI and Remote Sensing**	Chair: Alexis Comber
41	Detection of Wet Riparian Areas using Very High Resolution Multispectral UAS Imagery Based on a Feature-based Machine Learning Algorithm.	
	Masoume Mahboubi, Elena Belcore, Emanuele Pontoglio, Francesca Matrone and Andrea Lingua.	

44	Classifying Urban Green Spaces using a combined Sentinel-2 and Random Forest approach. Irada Ismayilova and Sabine Timpf.
32	Comparison of CNN-based segmentation models for forest type classification. Kevin Kocon, Michel Krämer and Hendrik M. Würz.
4	Classifying pedestrian trajectories by Machine learning using laser sensor data. Hiroyuki Kaneko and Toshihiro Osaragi.

Session 1b, Room SRA-I 04:   **Crowd-source GIS and citizen science**   Chair: Juha Oksanen

11	Traffic Regulation Recognition using Crowd-Sensed GPS and Map Data: a Hybrid Approach. Stefania Zourlidou, Jens Golze and Monika Sester.
17	Benchmarking Invasive Alien Species Image Recognition Models for a Citizen Science Based Spatial Distribution Monitoring. Tom Niers, Jan Stenkamp, Nick Pascal Jakuschona, Thomas Bartoschek and Sven Schade.
33	Mapping a historic neighbourhood through user-generated content: the case of Alfama, Lisbon (Portugal). Vicente Tang, Jaskaran Puri and Marco Painho.

Session 1c, Room SRA-I 05:   **Web GIS, Semantic analysis and data retrieval**   Chair: Marinos Kavouras

47	Geodata source retrieval by multilingual/semantic query expansion: the Case of Google Translate and WordNet version 3.1. Maryam Sajjadian and Simon Scheider.
73	A web-based application to support the interaction of spatial and semantic representation of knowledge. Dimitra Zacharopoulou, Margarita Kokla, Eleni Tomai and Marinos Kavouras.
70	CrossroadsDescriber - Automatic Description of OpenStreetMap Intersections. Jérémy Kalsron, Jean-Marie Favreau and Guillaume Touya.
10	Optimizing Electric Vehicle Charging Schedules Based on Probabilistic Forecast of Individual Mobility. Haojun Cai, Yanan Xin, Henry Martin and Martin Raubal.

Lunch Break, 12:30-13:30

Parallel Sessions 2, 13:30 - 15:00

Session 2a, Room SRA-I 03:   **Health and Aggriculture**   Chair: Simon Scheider

66	The Effect of COVID-19 on the Origins of Florida State Park Visitors and Online Reviewers. Innocensia Owuor, Hartwig Hochmair and Gernot Paulus.
74	Corn planting quality assessment in very high-resolution RGB UAV imagery using Yolov5 and Python. Lucas Casuccio and Andre Kotze.
54	Optimization of Agricultural Fertilization Strategies based on Meteorological and Edaphic parameters: Analysis of Site-Specific Geoinformation to Support Decision Making. Hardy Pundt, Roksolana Pleshkanovska, Thomas Kreuter, Enrico Thiel, Michael Grunert, Denise Assmann, Falk Böttcher and Florian Eißner.
31	Making Space a better Place: Just In Time Adaptive Interventions for Healthy Lifestyles. Arend Ligtenberg, Monique Simons, Marjolein Barhorst and Laura Winkens.

Session 2b, Room SRA-I 04:   **Spatial Data Infrastructures, data quality and metadata**   Chair: Rob Lemmens

| 15 | A method to produce metadata describing and assessing the quality of spatial landmark datasets in mountain area. Marie-Dominique Van Damme and Ana-Maria Olteanu-Raimond. |

37 Open source vector tile creation for spatial data infrastructure applications.
Andreas Georg Wallner, Piechl Thomas, Paulus Gernot and Anders Karl-Heinrich.

27 Lithuanian spatial information infrastructure: 20 years of evolution, milestones, costs and benefits.
Giedrė Beconytė, Andrius Balčiūnas, Inga Andriuškevičiūtė and Živilė Jakubkaitė.

63 Location Uncertainty of Mobile Phone Devices: The Ground Truth.
Aleksey Ogulenko, Itzhak Benenson, Marina Toger and John Osth.

Session 2c, Room SRA-I 05: **Transportation, traffic, micromobility** Chair: Sabine Timpf

3 A machine learning based approach for predicting usage efficiency of shared e-scooters using vehicle availability data.
Pengxiang Zhao, Aoyong Li, Petter Pilesjö and Ali Mansourian.

58 Modeling the Effect of Congestion Charge and Parking Pricing on Urban Traffic: Example of Jerusalem.
Golan Ben-Dor, Ido Klein, Aleksey Ogulenko and Itzhak Benenson.

61 Effects of traffic perturbations on bike sharing demand – a case study of public transport strikes and protest in Paris.
Stefan Ivanovic and Ross Purves.

16 The Impact of Built Environment on Bike Commuting: Utilising Strava Bike Data and Geographically Weighted Models.
Hyesop Shin, Costanza Cagnina and Anahid Basiri.

Coffee Break 15:00-15:30

Parallel Sessions 3, 15:30 - 17:00

Session 3a, Room SRA-I 03: **Disaster and risk management** Chair: Carsten Keßler

68 Flood modelling and proposed Blue-Green Solutions - A case study in Lisbon, Portugal.
Agnes Pierre, Alexandra Arnsteg, Lovisa Rosenquist Ohlsson, Patricija Marijauskaitė, Juliane Glinski and Petter Pilesjö.

72 Enabling Collaborative Cybercartography with MapBlender.
Marius Hogräfer, Jens Emil Grønbæk, Jana Puschmann, Sebastian Krog Knudsen and Hans-Jörg Schulz.

49 Geospatial technologies for an automated holistic risk assessment of UAS operations.
Gernot Paulus, Dariia Strelnikova, Thomas Lutz, Karl-Heinrich Anders, Klaus Gäbler, Gerhard Lippitsch, Daniela Meier and Stefan Eisenbach.

39 An evacuation simulation model of pedestrian flow using Bayesian Nash equilibrium and a Multi-Agent System.
Yiyu Wang, Jiaqi Ge and Alexis Comber.

Session 3b, Room SRA-I 04: **Geotechnology** Chair: Carlos Granell Canut

77 Applied open-source Discrete Global Grid Systems.
Alexander Kmoch, Oleksandr Matsibora, Ivan Vasilyev and Evelyn Uuemaa.

30 Modelling eye-level visibility of urban green space: Optimising city-wide point-based viewshed computations through prototyping.
Sebastian T. Brinkmann, Dominik Kremer and Blake B. Walker.

67 When is a Ring Road a 'Ring Road'? A Brief Perceptual Study.
Quentin Potié, William A. Mackaness and Guillaume Touya.

18 Study.
Thomas Bartoschek and Schwering Angela.

Poster session, 17:00-18:00, Room SRA-I 03 hall Chair: Arūnas Būga

Thursday, June 16, 2022, Room SRA-I 03 hall	Registration 8:30-9:00	Vilnius Tech, Saulėtekio al. 11 N 54.72211 E 25.33715

Keynote, 9:00-10:00, Room SRA-I 03 **Prof. Maria Antonia Brovelli**, Politecnico di Milano, **Training Machines with Geospatial Data**

Coffee break, 10:00-10:30

Parallel sessions 1, 10:30 - 12:00

Session 1a, Room SRA-I 03: **GI education, learning and training** Chair: Darius Popovas

Updating and using the EO4GEO Body of Knowledge for (AI) concept annotation.

71 Rob Lemmens, Florian Albrecht, Stefan Lang, Sven Casteleyn, Martyna Stelmaszczuk-Górska, Marc Olijslagers, Mariana Belgiu, Carlos Granell, Ellen-Wien Augustijn, Carsten Pathe, Eva-Maria Missoni-Steinbacher and Aida Monfort Muriach.

Showcase of Active Learning and Teaching Practices in Spatial Data Infrastructure (SDI) Education.

9 Frederika Welle Donker, Bastiaan Van Loenen, Carsten Keßler, Natalie Küppers, Mark Panek, Ali Mansourian, Pengxiang Zhao, Glenn Vancauwenberghe, Hrvoje Tomić and Karlo Kević.

Teaching geoinformatics: challenges and opportunities.

76 Evelyn Uuemaa and Alexander Kmoch.

The 5*S Community Education Project.

83 Conor Cahalane.

Session 1b, Room SRA-I 04: **Earth Observation Applications** Chair: Jūratė Sužiedelytė Visockienė

Machine Learning with UAS LiDAR for Winter Wheat Biomass Estimations.

79 Jordan Bates, Francois Jonard, Rajina Bajracharya, Harry Vereecken and Carsten Montzka.

Evaluation of SRGAN Algorithm for Superresolution of Satellite Imagery on Different Sensors.

28 Jaskaran Singh Puri and Andre Kotze.

Assessing the Influences of Band Selection and Pretrained Weights on Semantic-Segmentation-Based Refugee

34 Dwelling Extraction from Satellite Imagery.
Yunya Gao and Nianhua Liu.

Acceleration of Human Resource Development for the UAV data processing in Indonesia.

62 Winhard Tampubolon, Wolfgang Reinhardt and Franz-Josef Behr.

Session 1c, Room SRA-I 05: **Geospatial Blockchain, cybercartography, computer vision** Chair: Ali Mansourian

Geoblockchain: Geospatial Blockchain: review of decentralized geospatial data sharing systems.

35 Jesus Rodrigo Cedeno Jimenez, Pengxiang Zhao, Ali Mansourian and Maria Antonia Brovelli.

Towards geospatial blockchain: A review of research on blockchain technology applied to geospatial domain.

69 Pengxiang Zhao, Jesus Rodrigo Cedeno Jimenez, Maria Antonia Brovelli and Ali Mansourian.

Sonification of Spatial Data: An Online Audiovisual Cartographic Representation of Fire Incidents.

64 Aikaterini Foreinou, Marinos Kavouras, Margarita Kokla and Eleni Tomai.

interactions.

50 Francisco Garrido-Valenzuela, Sander van Cranenburgh and Oded Cats.

Lunch Break, 12:00-13:00

AGILE Annual Assembly, 13:00-14:00, Room SRA-I 03   **AGILE Annual Assembly**

Coffee break, 14:00-14:30

Parallel sessions 2, 14:30 - 16:00

Session 2a, Room SRA-I 03:   **GIScience, data handling and analysis**   Chair: Simon Scheider

38   Spatially Varying Coefficient Regression with GAM Gaussian Process splines: GAM(e)-on.
      Alexis Comber, Paul Harris and Chris Brunsdon.

55   Modelling Inhomogeneous Geodata Quality in a Dataset's Metadata.
      Arne Rümmler, Christin Henzen and Heiko Figgemeier.

56   A regionalization method filtering out small-scale spatial fluctuations.
      Lucas Spierenburg, Sander van Cranenburgh and Oded Cats.

81   Handling the MAUP: methods for identifying appropriate scales of aggregation based on measures on spatial
      and non-spatial variance.
      Alexis Comber, Paul Harris, Kristina Bratkova, Hoang Huu Phe, Minh Kieu, Bui Quang Thanh, Eric Wanjau and
      Nick Malleson.

Session 2b, Room SRA-I 04:   **Navigation, positioning, landmarks, history**   Chair: Eimuntas Paršeliūnas

60   Point Patterns of Historical Landmarks in Mexico City.
      Laura Elmer, Johannes Scholz and Werner Stangl.

6   "Landmark Route": A Comparison to the Shortest Route.
      Eva Nuhn, Franziska König and Sabine Timpf.

22   Experimental evaluation of using BLE beacon for outdoor positioning in GPS-denied environment.
      Yousef Qamaz, Angela Schwering and Janina Bistron.

52   The Intersection between GIScience and History: an Overview of an Emerging Scientific Field.
      Hannah Meyer and Johannes Scholz.

Session 2c, Room SRA-I 05:   **Spatial modelling and analysis using machine learning**   Chair: Rob Lemmens

78   Off-Road Navigation Maps for Robotic Platforms using Convolutional Neural Networks.
      Raphael Prinz, Johannes Scholz, Rizwan Bulbul, Matthias Eder and Gerald Steinbauer-Wagner.

48   ML-based water quality modeling at national level in a data-scarce region.
      Holger Virro, Alexander Kmoch, Marko Vainu and Evelyn Uuemaa.

12   Exploratory Analysis and Feature Selection for the Prediction of Nitrogen Dioxide.
      Ditsuhi Iskandaryan, Silvana Di Sabatino, Francisco Ramos and Sergio Trilles.

13   Spatial Disaggregation of Population Subgroups Leveraging Self-Trained Multi-Output Gradient Boosted
      Regression Trees.
      Marina Georgati, João Monteiro, Bruno Martins and Carsten Keßler.

Gala Dinner, 19:30   **"PIRKLIŲ KLUBAS", Gedimino pr. 35, Vilnius**   N 54.68913 E 25.26868

Keynote, 9:00-10:00 | **Mindaugas Pakalnis**, Chief Architect, Vilnius City Municipality, **Geo-Information for City planning**

Best Short Papers Presentation,
Room SRA-I 03, 10:00 - 10:40

Best Short Papers   Chair: Sabine Timpf

29 | Representing Vector Geographic Information As a Tensor for Deep Learning Based Map Generalisation.
Azelle Courtial, Guillaume Touya and Xiang Zhang.

65 | The use of high-resolution photogrammetry for the survey and analysis of rock-climbing walls.
Stefan Ruess, Gernot Paulus and Karl-Heinrich Anders.

Selection of the best short paper

Coffee break, 10:40 - 11:00

Best Full Papers Presentation,
Room SRA-I 03, 11:00-12:30

Best Full Papers   Chair: Alex Comber

5 | What are intersections for pedestrian users?
Jean-Marie Favreau and Jérémy Kalsron.

7 | Unlocking social network analysis methods for studying human mobility.
Nina Wiedemann, Henry Martin and Martin Raubal.

14 | GeoXTag: Relative Spatial Information Extraction and Tagging of Unstructured Text.
Syed Mehtab Alam, Elena Arsevska, Mathieu Roche and Maguelonne Teisseire.

Selection of the best full paper

Reproducible Research.
Daniel Nüst, Frank Ostermann, Carlos Granell

Closing session, Room SRA-I 03, 12:30-13:00

Present to the best Full paper, short paper, poster
Announcement of the next conference
Presentation of AGILE 2023 venue
Closing the conference

Lunch, 13:00 - 14:00

Poster Presentations, June 15 - 17, Room SRA-I 03 hall

36 | Geospatial Analysis of Safe Delivery App Events Based on Geographically Weighted Regression Tool.
Masoume Mahboubi, Astrid Grønbæk, Ana Fernandes, Casper Fibæk and Paolo Dabove.

40 | High frequency land cover classification method for supporting global monitoring.
Dainius Masiliūnas, Diego Marcos, Nandin-Erdene Tsendbazar, Martin Herold and Jan Verbesselt.

43 | Precision mapping through an RGB-Depth camera and deep learning.
Georgios Petrakis and Panagiotis Partsinevelos.