

Conference Agenda

Session Overview

Date: Wednesday, 10/Sept/2025

8:00am - 8:45am	Registration - Day 1
8:45am - 9:00am	Opening Ceremony Location: Kaleva
9:00am - 9:30am	Key1: Keynote: Prof. Fu Zhang University of Hong Kong, Hong Kong S.A.R. (China) Location: Kaleva Keynote A LiDAR-centric approach for reliable UAV navigation Fu Zhang
9:30am - 10:30am	Technical Program - UAVG1: Cutting-Edge UAV Robotics: Navigation, Mapping, and Autonomy 1 Location: Kaleva 9:30am - 9:45am ISPRS Annals Submission Multi-sensor Fusion SLAM from the Nadir View for UAV Localization and Mapping <u>Yawen Li</u> , George Vosselman, Francesco Nex 9:45am - 10:00am ISPRS Annals Submission Fast Point Ranking - Robust Cloud Voxelization and Denoising for Lidar Odometry and Mapping in Adverse Weather Conditions <u>Eugeniu Vezeteu</u> , Heikki Hyyti, Ville Kyrki, Juha Hyypä 10:00am - 10:15am ISPRS Archives Submission Evaluating the performance of a lidar-based autonomous flying system for flying inside forest <u>Aleksi Viljami Karhunen</u> , Teemu Hakala, Väinö Karjalainen, Eija Honkavaara 10:15am - 10:30am ISPRS Annals Submission Low-cost Extrinsic Calibration Between LIDAR and Thermal Camera for Indoor Mapping <u>Benjamin Ronald van Manen</u> , Ville Lehtola, Abeje Yenehun Mersha, Francesco Nex
10:30am - 11:00am	Coffee Break - Day 1 Location: Kaleva Hall
11:00am - 11:30am	Key2: Keynote: Prof. Pablo J. Zarco-Tejada Spanish Council for Scientific Research (CSIC), Spain Location: Kaleva Keynote Physiological assessment of vegetation using airborne platforms: 25 years of progress in hyperspectral methods Pablo J. Zarco-Tejada
11:30am - 12:30pm	Technical Program - UAVG2: Intelligent UAVs for Forests and Agriculture 1 Location: Kaleva Chair: <u>Raquel Alves de Oliveira</u> Chair: <u>Georg Bareth</u> 11:30am - 11:45am ISPRS Archives Submission Hyperspectral drone images indicate that green shoulder indices are robust in pre-emergence detection of spruce bark beetle infestation across spatial and temporal scales Luiz Henrique Elias Cosimo, Eva Lindberg, Henrik Persson, Jonas Bohlin, Langning Huo 11:45am - 12:00pm ISPRS Archives Submission Deriving structural and biochemical crop traits from one UAV sensor: Investigating a multiband VNIR/SWIR imaging system for crop trait monitoring Alexander Jenal, Andreas Bolten, Hubert Hüging, Jens Bongartz, Georg Bareth

	12:00pm - 12:15pm ISPRS Annals Submission Mapping individual spruces with multispectral drone <u>Jere Johannes Kaivosoja</u>, Samuli Launiainen
	12:15pm - 12:30pm ISPRS Archives Submission Differentiating Acute and Chronic Stress in Norway Spruce Using Hyperspectral and Thermal Remote Sensing in Experimental Plots. Rastislav Jakus, Miroslav Blazenec, Matus Pivovar, Jana Maresova, Vivek Singh, Aleksandr Karpov, Natalie Korolyova
12:30pm - 1:30pm	Lunch - Day 1 Location: Kaleva Hall
1:30pm - 3:30pm	Coffee and Posters - Day 1; POS1: Poster session and Industrial exhibition Location: Kaleva Hall ISPRS Archives Submission Detecting Root Rot Infected Norway Spruce Trees Using Multispectral and LiDAR UAV Data <u>Gustav Boman</u>, Basam Dahy, Esra Sengun, Johanna Witzell, Johan E.S. Fransson ISPRS Archives Submission Chlorophyll-a and Turbidity estimation using UAV imagery and machine learning in a tropical eutrophic reservoir Daniel H. C. Salim, Caio C. S. Mello, Gabriel Pereira, Raian V. Maretto, Frederico S. Machado, Camila C. Amorim ISPRS Archives Submission A Multiview UAV Imagery-Based Method for Assessing Spruce Tree Health at the Individual Tree Level <u>Alva Selina Anttonen</u>, Axel Päivänsalo, Emma Turkulainen, Raquel Alves de Oliveira, Kirsi Karila, Niko Koivumäki, Roope Näsi, Eija Honkavaara ISPRS Archives Submission Determining the Amount of Crop Residue Cover Using Image Analysis <u>Mikael Aleksi Änäkälä</u>, Roope Rantanen, Antti Lajunen ISPRS Archives Submission Applying UAV-based crop height to monitor biomass, N-concentration, and N-uptake in winter wheat Georg Bareth, Christoph Hütt, Alexander Jenal, Andreas Bolten, Nora Tilly, Hubert Hüging ISPRS Archives Submission Mapping Boreal Forest Vitality Using Drone-Based Multispectral Time-Series and Object-Based Classification <u>Basam Dahy</u>, Esra Sengun, Johanna Witzell, Johan E.S. Fransson ISPRS Archives Submission Evaluation of forage grass biomass estimation models using multispectral drone imaging across multiple sites <u>Raquel Alves de Oliveira</u>, Roope Näsi, Jonas Edström, Joel Pitkänen, Panu Korhonen, Oiva Niemeläinen, Niko Koivumäki, Jere Kaivosoja, Eija Honkavaara ISPRS Archives Submission UAV-assisted Multi-Object Tracking and Segmentation of Apples under Occlusions in Orchard <u>Kaiwen Wang</u>, Lammert Kooistra, Wensheng Wang, João Valente ISPRS Archives Submission Remote Sensing Upside Down: Exploring the Potential of Ground-Based Multispectral Cameras for Tree Crown Monitoring Mona Goebel, Lukas Wolf, Federik Packwitz, Dorota Iwaszczuk ISPRS Archives Submission

	UAV and AI for large-scale monitoring of the effects of climate change on mountain lake areas: the ACLIMO cross-border cooperation project <u>Chiara Graziani</u>, Andrea Maria Lingua, Francesca Matrone, Alessandra Spadaro ISPRS Archives Submission Marine Debris Monitoring on Uninhabited Islands Using UAV-Based 3D Modeling <u>Sung-Joo Yoon</u>, Tae-Ho Kim ISPRS Annals Submission Assessment of smoothing and scale change effects on aquatic emergent vegetation in high spatial resolution image segmentation Leticia Mayumi Matsuda, Nilton Nobuhiro Imai, Adilson Berveglieri
3:30pm - 5:00pm	Technical Program - UAVG3: Intelligent UAVs for Forests and Agriculture 2 Location: Kaleva Chair: Lammert Kooistra Chair: Langning Huo 3:30pm - 3:45pm ISPRS Archives Submission Integrating UAS, Computer Vision and AI for Targeted Management of Invasive Insect Pests in Vineyards Andrea Maria Lingua, Alessio Martino, <u>Francesca Gallitto</u>, Stefania Manca, Paolo Maschio, Valeria Longhi, Filiberto Chiabrando, Marco Grella 3:45pm - 4:00pm ISPRS Archives Submission Optimizing high-resolution multi-view drone imaging for detecting foreign grains in gluten-free oat production fields Roope Näsi, Raquel Alves de Oliveira, Stefan Rua, Ehsan Khoramshahi, Axel Päivänsalo, Oiva Niemeläinen, Eija Honkavaara, Markku Niskanen 4:00pm - 4:15pm ISPRS Annals Submission Comparative Analysis of YOLOv8 and YOLOv11 on Tree Detection Using UAV RGB and Laser Scanning Data <u>Esra Sengun</u>, Samet Aksoy, Elif Sertel, Johan E.S. Fransson 4:15pm - 4:30pm ISPRS Archives Submission Individual Tree Species Classification in a Mediterranean Ecosystem using UAV-Acquired Multispectral Images and Machine Learning Alessandra Spadaro, Andrea Maria Lingua, Filiberto Chiabrando 4:30pm - 4:45pm ISPRS Annals Submission Tree stem diameter estimation using inexpensive UAV photogrammetric data and Monte Carlo methods Borja García-Pascual, Carlos Martín-Cortés, Xin Zhou, <u>Evgeny Lopatin</u>, Mauricio Acuna, Kalle Kärhä 4:45pm - 5:00pm ISPRS Archives Submission Assessment of tree detection and segmentation pipelines using Terrestrial Laser Scanning data in orange orchards <u>Letícia Ferrari Castanheiro</u>, Mariana Batista Campos, Matheus Ferreira Silva, Rahuan Miguel Silva, Renato César Santos, Mauricio Galo, Antonio Maria Garcia Tommaselli
6:00pm	Ice Breaker

Date: Thursday, 11/Sept/2025

8:00am - 9:00am	Registration - Day 2
9:00am - 9:30am	Key3: Keynote: Prof. Antonios Tsourdos Cranfield University, United Kingdom Location: Kaleva Keynote Autonomous BVLOS UAV Operations: From Research to Large-Scale Real-World Deployment Antonios Tsourdos
9:30am - 10:30am	Technical Program - UAVG4: Towards Safe and Scalable Wide-Area BVLOS Operations Location: Kaleva Chair: Eija Honkavaara Chair: Hannu Karvonen 9:30am - 9:45am Keynote Hydrogen-Powered Autonomy: Scaling BVLOS UAV Operations in Practice Kelluu Oy 9:45am - 10:00am ISPRS Archives Submission Swarm Intelligence and Systems Thinking: Finding Common Ground for the Engineering of Drone Swarms Solutions Hannu Karvonen , Marjoriikka Ylisiurua , Arto Wallin , Fabrice Saffre , Hanno Hildmann , Vadim Kramar , Sebastian Coffeng 10:00am - 10:15am ISPRS Archives Submission How the engineering of Swarming Behaviors could be drawing on Social Sciences Hanno Hildmann , Regina Nockerts , Sebastian Coffeng , Hannu Karvonen , Johan van der Heuvel , Ricardo van der Pluijm , Fabrice Saffre 10:15am - 10:30am ISPRS Archives Submission A Collaborative GIS for Planning of Urban Drone Launch and Landing Site Locations Miloš Mladenović , Atiullah Saif , Eija Honkavaara , Pyy Kettunen , Mikko Rönneberg , Anssi Jussila , Leo Niemi , Miia Farstad
10:30am - 11:00am	Coffee Break - Day 2 Location: Kaleva Hall
11:00am - 12:30pm	Technical Program - UAVG5: Drone Applications in the Built Environment Location: Kaleva Chair: Taejung Kim Chair: Görres Grenzdörffer 11:00am - 11:15am ISPRS Annals Submission Drone based analysis of nocturnal light pollution Görres Grenzdörffer 11:15am - 11:30am ISPRS Annals Submission Cold Region Building Inspection using UAV-based Three-dimensional Reconstruction Nicholas Chodura , Derek Boase , Joshua Woods , Melissa Greeff 11:30am - 11:45am ISPRS Annals Submission IDENTIFICATION OF WASTE MATERIALS IN SEMI-CONTROLLED TEST SITE USING UAV THERMAL AND MULTISPECTRAL IMAGES Hassan Ali Makkawi Gassim , Vincenzo Di Pietra , Marco Piras 11:45am - 12:00pm ISPRS Archives Submission

	Exploring the Potential of Super-Resolution for Crack Analysis in UAV Facade Orthomosaics of Small Bridges Dahye Jang, Hyunsoo Park, Euiik Jeon 12:00pm - 12:15pm ISPRS Archives Submission ResQDrone: Autonomous Indoor Quadcopter for Multi-Layered Mapping in Crisis and Disaster Management Scenarios Marco Cella, Jürgen Biber, Pierrick Bournez, Jules Salzinger, Verena Widhalm, Francesco d'Apolito, Felix Bruckmüller, Christoph Sulzbachner, Phillipp Fanta-Jende
12:30pm - 1:30pm	Lunch - Day 2 Location: Kaleva Hall
1:30pm - 2:00pm	Industry keynote: CTO Arttu Soininen, Terrasolid Oy, Breaklines and Mass Points Location: Kaleva
1:30pm - 3:30pm	Coffee and Posters - Day 2 Location: Kaleva Hall ISPRS Archives Submission Addressing GNSS Vulnerabilities in AAM: A Multi-Modal UAV Testbed for Redundant and Reliable Navigation <u>Felix Rocco Matzke</u>, Tushar Jayesh Barot, Shreeja Sridharan, Nikolaus Ammann, Christoph Kessler, Hans-Gerd Maas, Frank H. P. Fitzek, Anette Eltner ISPRS Archives Submission Under-canopy UAV Solutions for Forest Inventory – Challenges and Opportunities Xinlian Liang, Guangzu Liu, Xintong Dou ISPRS Archives Submission Autonomous Drone Navigation in Forest Environments Using Deep Learning Guglielmo Del Col, Väinö Karjalainen, Teemu Hakala, Eija Honkavaara ISPRS Archives Submission Precise georeferencing of RGB and multispectral drone images without ground control points <u>José Gonçalves</u>, Ana Bio, Manuel Meyer ISPRS Archives Submission Under-Canopy UAV Global Path Planning for Tree DBH Estimation Using LiDAR <u>Yang Chen</u>, Shuhang Zhang, Qian Sun, Hao Xiong, Wuming Zhang ISPRS Archives Submission ORBIT: Optimized Routing for Bridge Inspection Toolkit. An open-source UAS flight path planning tool for comprehensive bridge inspections under realistic constraints <u>Erkki Tobias Bartczak</u>, Maarten Bassier, Maarten Vergauwen ISPRS Archives Submission On Voxel-Based Sampling of Planar Surface Areas from Photogrammetric UAV Data <u>Petri Rönnholm</u>, Matti T. Vaaja ISPRS Archives Submission An Automated Framework for Cadastral Parcel Adjustment Using UAV Orthophotos, SAM, and ICP <u>Deni Suwardhi</u>, Muhammad Ihsan, Ratri Widyastuti, Nabila Sofia Eryan Putri, Sella Lestari Nurmaulia, Andri Hernandi ISPRS Archives Submission UAS for Landscape and Architectural Survey: An Innovative Interdisciplinary Approach of Learning by Doing in the Bachelor Programs at Politecnico di Torino Alessio Martino, Filiberto Chiabrande, Andrea Maria Lingua ISPRS Archives Submission

	Bimodal MorphoCopter for Wildfire Suppression: Transforming Quadcopters to All-Terrain-Vehicles (ATV) <u>Osman ACAR</u>, Eija HONKAVAARA, Selahattin SEFACI ISPRS Archives Submission Real time solar panels heat point's detection with EDGE ViTs using thermal drone imagery <u>Mouad Jabrane</u>, Imane Sebari, Kenza Ait El Kadi ISPRS Annals Submission Application of UAV orthophoto and thermal imaging for municipal solid waste landfills monitoring Olga Brovkina, Lukáš Fajmon, Miroslav Píkl, František Zemek
3:30pm - 5:00pm	Technical Program - UAVG6: Novel UAV Computer Vision Systems and Algorithms Location: <u>Kaleva</u> Chair: <u>Dorota Iwaszczuk</u> Chair: <u>Antonio Maria Garcia Tommaselli</u> ISPRS Annals Submission Real-Time Bundle Adjustment for Ultra-High-Resolution UAV Imagery Using Adaptive Patch-Based Feature Tracking <u>Selim Ahmet Iz</u>, Francesco Nex, Norman Kerle, Henry Meissner, Ralf Berger ISPRS Annals Submission A Robust Integrated Approach for Near Real-Time Seamless Orthomosaic Generation Using Off-the-Shelf UAVs for Ultra-High Resolution Mapping Applications <u>Muhammad Farhan Humayun</u>, Ali Salmasi, Jiaqiang Zhang, Tomi Westerlund, Jukka Heikkonen ISPRS Archives Submission Robust UAV Image Mosaicking Using SIFT and LightGlue Sung Hyeon Kim, <u>Taejung Kim</u> ISPRS Annals Submission Distortion Invariant Optical Calibration for Lightweight Airborne Imaging Spectrometry Julien Burkhard, Jesse Lahaye, <u>Laurent Valentin Jospin</u>, Jan Skaloud ISPRS Annals Submission Systematic Error Reduction in UAV-Based Laser Scanning by Using RTS <u>André Cornelißen</u>, Ansgar Dreier, Felix Esser, Gereon Tombrink, Lasse Klingbeil, Heiner Kuhlmann ISPRS Archives Submission Misalignment estimation of a lightweight laser scanning system with static calibration Marcela Vale Machado, <u>Antonio Maria Garcia Tommaselli</u>, Leticia Ferrari Castanheiro, Thaisa Aline Correia Garcia, Thiago Tiedtke Reis
7:00pm	Conference Dinner

Date: Friday, 12/Sept/2025

8:00am - 9:00am	Registration - Day 3
9:00am - 9:30am	Key4: Keynote: Prof. Vincent Lepetit ENPC, France Location: Kaleva Keynote Beyond the Next-Best-View: Machine Learning and Computer Vision for the Exploration and 3D Mapping of Large Scenes Vincent Lepetit
9:30am - 10:30am	Technical Program - UAVG7: Cutting-Edge UAV Robotics: Navigation, Mapping, and Autonomy 2 Location: Kaleva Chair: Francesco Nex Chair: Antero Kukko 9:30am - 9:45am ISPRS Annals Submission Autonomous UAV 3D Reconstruction using Prediction-Based Next Best View Ziwen Wang , Bashar Alasdik, Francesco Nex 9:45am - 10:00am ISPRS Archives Submission Combining soft robotics and active-laser induced fluorescence for environmental monitoring: Evaluating the drone-scenario of the I-Seed project Lammert Kooistra, Hasib Mustafa, Domantas Girzidas, Chenglong Zhang, Berry Onderstal, Harm Bartholomeus 10:00am - 10:15am ISPRS Annals Submission SMARTNav: A Visual-Inertial Dataset for Reliable Robotic State Estimation Hojat Mirtajadini Goki , Abeje Mersha, Mohammad Aldibaja 10:15am - 10:30am ISPRS Annals Submission Integrating Pre-Harvest UAV Scans to Enhance Harvester Tree Localization Accuracy Evgeny Lopatin, Kari Väättäinen, Harri Kaartinen, Heikki Hyyti, Lauri Sikanen, Yrjö Nuutinen, Mauricio Acuna
10:30am - 11:00am	Coffee Break - Day 3 Location: Kaleva Hall
11:00am - 12:15pm	Technical Program - UAVG8: Uncrewed Remote Sensing Systems for Aquatic Environments Location: Kaleva Chair: Filiberto Chiabrando Chair: Harri Kaartinen 11:00am - 11:15am ISPRS Annals Submission Novel robotic mapping system for freshwater environments Jukka Matias Mäki-Leppilampi , Heikki Hyyti, Harri Kaartinen 11:15am - 11:30am ISPRS Archives Submission Comparative Analyses for Determining Shallow Water Bathymetry from UAVs: a Case Study in the Adriatic Sea Tea Duplančić Leder, Nenad Leder 11:30am - 11:45am ISPRS Annals Submission Performance Evaluation of Drone Operated Dual Waveform Bathymetric LiDAR Joonas Kousa, Teemu Hakala, Antero Kukko, Harri Kaartinen 11:45am - 12:00pm ISPRS Annals Submission Phenological and Species-Level Classification of Aquatic Invasive Plants Using UAV Multispectral Imagery and Machine Learning

	Daniel H. C. Salim, Caio C. S. Mello, Gabriel Pereira, Raian V. Maretto, Frederico S. Machado, Camila C. Amorim
12:15pm - 1:15pm	Lunch - Day 3
1:15pm - 2:45pm	Technical Program - UAVG9: Next-Generation AI for UAVs Location: Kaleva Chair: Anna-Maria Raita-Hakola 1:15pm - 1:30pm ISPRS Archives Submission Advancements on Semantic Real-Time UAV Mapping <u>Marc David Haubenstock</u>, Jules Salzinger, Michael Schwingshackl, Felix Bruckmüller, Christoph Sulzbachner, Phillipp Fanta-Jende 1:30pm - 1:45pm ISPRS Annals Submission Implementing real-time wildfire detection using lightweight object-detection models and machine vision sensor on Raspberry Pi 5: Fireframe, a practical framework <u>Jukka Joutsalainen</u>, Maxim Vitikainen, Juuso Lehtbäck, Alexander Goldhill, Anna-Maria Raita-Hakola 1:45pm - 2:00pm ISPRS Annals Submission An End-to-End UAV–Cloud–AI Pipeline for Infrared-Based Real-Time Person Detection in SAR Missions <u>Seunghyun Kim</u>, Jeonghyo Oh, Younggon Oh, Impyeong Lee 2:00pm - 2:15pm ISPRS Annals Submission The End of Overfitting for UAV Applications - Self-Supervised Pretraining on Multispectral UAV Data <u>Jurrian Doornbos</u>, Önder Babur 2:15pm - 2:30pm ISPRS Archives Submission Domain Generalization in Deep Learning for Forest Health Monitoring Using Multispectral UAS Data <u>Emma Jenni Johanna Turkulainen</u>, Raquel Alves de Oliveira, Niko Koivumäki, Päivi Lyytikäinen-Saarenmaa, Roope Näsi, Mikko Peltö-Arvo, Johanna Tuviala, Eija Honkavaara ISPRS Archives Submission Smart Drones, Smarter Learning: Federated Self-learning Minimal Learning Machine Classifier for Real-Time Hyperspectral Image Classification Anna-Maria Raita-Hakola, Xinying Kilpi-Chen, Ilkka Pölonen
2:45pm	Closing Ceremony and Coffee