

# Conference Agenda

## Session Overview

Date: **Wednesday, 10/Sept/2025**

8:00am - 9:00am	Registration - Day 1
9:00am - 10:30am	<b>Technical Program - UAVG1: Cutting-Edge UAV Robotics: Navigation, Mapping, and Autonomy 1</b> Location: <a href="#">Kaleva</a>  9:00am - 9:30am <b>A LiDAR-centric approach for reliable UAV navigation</b> <b>Fu Zhang</b> <hr/> 9:30am - 9:45am <b>Multi-sensor Fusion SLAM from the Nadir View for UAV Localization and Mapping</b> <b>Yawen Li, George Vosselman, Francesco Nex</b> <hr/> 9:45am - 10:00am <b>Fast Point Ranking - Robust Cloud Voxelization and Denoising for Lidar Odometry and Mapping in Adverse Weather Conditions</b> <b>Eugeniu Vezeteu, Heikki Hyyti, Ville Kyrki, Juha Hyyppä</b> <hr/> 10:00am - 10:15am <b>Evaluating the performance of a lidar-based autonomous flying system for flying inside forest</b> <b>Aleksi Viljami Karhunen, Teemu Hakala, Väinö Karjalainen, Eija Honkavaara</b> <hr/> 10:15am - 10:30am <b>Low-cost Extrinsic Calibration Between LIDAR and Thermal Camera for Indoor Mapping</b> <b>Benjamin Ronald van Manen, Ville Lehtola, Abeje Yenehun Mersha, Francesco Nex</b>
10:30am - 11:00am	Coffee Break - Day 1 Location: <a href="#">Kaleva Hall</a>
11:00am - 12:30pm	<b>Technical Program - UAVG2: Intelligent UAVs for Forests and Agriculture 1</b> Location: <a href="#">Kaleva</a>  11:00am - 11:30am <b>Physiological assessment of vegetation using airborne platforms: 25 years of progress in hyperspectral methods</b> <b>Pablo J. Zarco-Tejada</b> <hr/> 11:30am - 11:45am <b>Hyperspectral drone images indicate that green shoulder indices are robust in pre-emergence detection of spruce bark beetle infestation across spatial and temporal scales</b> <b>Luiz Henrique Elias Cosimo, Eva Lindberg, Henrik Persson, Jonas Bohlin, Langning Huo</b> <hr/> 11:45am - 12:00pm <b>Deriving structural and biochemical crop traits from one UAV sensor: Investigating a multiband VNIR/SWIR imaging system for crop trait monitoring</b> <b>Alexander Jenal, Andreas Bolten, Hubert Hüging, Jens Bongartz, Georg Bareth</b> <hr/> 12:00pm - 12:15pm <b>Mapping individual spruces with multispectral drone</b> <b>Jere Johannes Kaivosoja, Samuli Launiainen</b> <hr/> 12:15pm - 12:30pm <b>Differentiating Acute and Chronic Stress in Norway Spruce Using Hyperspectral and Thermal Remote Sensing in Experimental Plots.</b> <b>Rastislav Jakus, Miroslav Blazenec, Matus Pivovar, Jana Maresova, Vivek Singh, Aleksandr Karpov, Natalie Korolyova</b>
12:30pm - 1:30pm	Lunch - Day 1 Location: <a href="#">Kaleva Hall</a>
1:30pm - 3:30pm	<b>Coffee and Posters - Day 1; POS1: Poster session and Industrial exhibition</b> Location: <a href="#">Kaleva Hall</a>  <b>Detecting Root Rot Infected Norway Spruce Trees Using Multispectral and LiDAR UAV Data</b> <b>Gustav Boman, Basam Dahy, Esra Sengun, Johanna Witzell, Johan E.S. Fransson</b>

**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

**A Multiview UAV Imagery-Based Method for Assessing Spruce Tree Health at the Individual Tree Level**

Alva Selina Anttonen, Axel Päivänsalo, Emma Turkulainen, Raquel Alves de Oliveira, Kirsi Karila, Niko Koivumäki, Roope Näsi, Eija Honkavaara

**Determining the Amount of Crop Residue Cover Using Image Analysis**

Mikael Aleksii Änäkkälä, Roope Rantanen, Antti Lajunen

**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

**Mapping Boreal Forest Vitality Using Drone-Based Multispectral Time-Series and Object-Based Classification**

Basam Dahy, Esra Sengun, Johanna Witzell, Johan E.S. Fransson

**Evaluation of forage grass biomass estimation models using multispectral drone imaging across multiple sites**

Raquel Alves de Oliveira, Roope Näsi, Jonas Edström, Joel Pitkänen, Panu Korhonen, Oiva Niemeläinen, Niko Koivumäki, Jere Kaivosoja, Eija Honkavaara

**UAV-assisted Multi-Object Tracking and Segmentation of Apples under Occlusions in Orchard**

Kaiwen Wang, Lammert Kooistra, Wensheng Wang, João Valente

**Remote Sensing Upside Down: Exploring the Potential of Ground-Based Multispectral Cameras for Tree Crown Monitoring**

Mona Goebel, Lukas Wolf, Federik Packwitz, Dorota Iwaszczuk

**UAV and AI for large-scale monitoring of the effects of climate change on mountain lake areas: the ACLIMO cross-border cooperation project**

Chiara Graziani, Andrea Maria Lingua, Francesca Matrone, Alessandra Spadaro

**Geospatial information based on UAV for socio-environmental problems in an urban river**

Andrea N. Escobedo Tamez, Fabiola D. Yépez-Rincón, Yadira Z. Antonio Durán, Mariana Pérez Martínez, Rogelio Aguilar Cruz, Milena Mesa Lavista, David Clemente Pérez, Nelly L. Ramírez Serrato, Carlos J. Ábrego Góngora

**Marine Debris Monitoring on Uninhabited Islands Using UAV-Based 3D Modeling**

Sung-Joo Yoon, Tae-Ho Kim

**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

3:30pm - 3:45pm

**Integrating UAS, Computer Vision and AI for Targeted Management of Invasive Insect Pests in Vineyards**

Andrea Maria Lingua, Alessio Martino, Francesca Gallitto, Stefania Manca, Paolo Maschio, Valeria Longhi, Filiberto Chiabrande, Marco Grella

3:45pm - 4:00pm

**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

**Comparative Analysis of YOLOv8 and YOLOv11 on Tree Detection Using UAV RGB and Laser Scanning Data**

Esra Sengun, Samet Aksoy, Elif Sertel, Johan E.S. Fransson

4:15pm - 4:30pm

**Individual Tree Species Classification in a Mediterranean Ecosystem using UAV-Acquired Multispectral Images and Machine Learning**

Alessandra Spadaro, Andrea Maria Lingua, Filiberto Chiabrande

4:30pm - 4:45pm

**Tree stem diameter estimation using inexpensive UAV photogrammetric data and Monte Carlo methods**

Borja García-Pascual, Carlos Martín-Cortés, Xin Zhou, [Evgeny Lopatin](#), Mauricio Acuna, Kalle Kärhä

---

4:45pm - 5:00pm

**Assessment of tree detection and segmentation pipelines using Terrestrial Laser Scanning data in orange orchards**

[Leticia Ferrari Castanheiro](#), 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 - 10:30am	<b>Technical Program - UAVG4: Towards Safe and Scalable Wide-Area BVLOS Operations</b> Location: <a href="#">Kaleva</a> Chair: Eija Honkavaara  9:00am - 9:30am <b>Autonomous BVLOS UAV Operations: From Research to Large-Scale Real-World Deployment</b> Antonios Tsourdos <hr/> 9:30am - 9:45am <b>Hydrogen-Powered Autonomy: Scaling BVLOS UAV Operations in Practice</b> Kelluu Oy <hr/> 9:45am - 10:00am <b>Swarm Intelligence and Systems Thinking: Finding Common Ground for the Engineering of Drone Swarms Solutions</b> <u>Hannu Karvonen</u> , Marjoriikka Ylisiurua, Arto Wallin, Fabrice Saffre, Hanno Hildmann, Vadim Kramar, Sebastian Coffeng <hr/> 10:00am - 10:15am <b>How the engineering of Swarming Behaviors could be drawing on Social Sciences</b> Hanno Hildmann, Regina Nockerts, Sebastian Coffeng, Hannu Karvonen, Johan van der Heuvel, Ricardo van der Pluijm, <u>Fabrice Saffre</u> <hr/> 10:15am - 10:30am <b>A Collaborative GIS for Planning of Urban Drone Launch and Landing Site Locations</b> 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: <a href="#">Kaleva Hall</a>
11:00am - 12:30pm	<b>Technical Program - UAVG5: Drone Applications in the Built Environment</b> Location: <a href="#">Kaleva</a>  11:00am - 11:15am <b>Drone based analysis of nocturnal light pollution</b> Görres Grenzdörffer <hr/> 11:15am - 11:30am <b>Cold Region Building Inspection using UAV-based Three-dimensional Reconstruction</b> <u>Nicholas Chodura</u> , Derek Boase, Joshua Woods, Melissa Greeff <hr/> 11:30am - 11:45am <b>IDENTIFICATION OF WASTE MATERIALS IN SEMI-CONTROLLED TEST SITE USING UAV THERMAL AND MULTISPECTRAL IMAGES</b> Hassan Ali Makkawi Gassim, Vincenzo Di Pietra, Marco Piras <hr/> 11:45am - 12:00pm <b>Exploring the Potential of Super-Resolution for Crack Analysis in UAV Facade Orthomosaics of Small Bridges</b> <u>Dahye Jang</u> , Hyunsoo Park, Euiik Jeon <hr/> 12:00pm - 12:15pm <b>An UAV for 3D Tree Surveying Method as an Improvement for Dam Construction Environmental Impact Manifestation in Mexico</b> Kevin D. Rodríguez González, Fabiola D. Yépez-Rincón, Jacinto Treviño Carreón, Ivone Zapata Wah, Adrián L. Ferriño Fierro, Carlos C. Aguilar Treviño, Aylet Vega Aguilar, Roberto Huerta García, Yadira Zulema Antonio Durán <hr/> 12:15pm - 12:30pm <b>ResQDrone: Autonomous Indoor Quadcopter for Multi-Layered Mapping in Crisis and Disaster Management Scenarios</b> Marco Cella, Jürgen Biber, Pierrick Bournez, Jules Salzinger, Verena Widhalm, Francesco d'Apolito, Felix Bruckmüller, Christoph Sulzbachner, Phillip Fanta-Jende
12:30pm - 1:30pm	Lunch - Day 2 Location: <a href="#">Kaleva Hall</a>

1:30pm - 2:00pm	<b>Industry keynote: Terrasolid Oy</b> Location: <a href="#">Kaleva</a>
1:30pm - 3:30pm	<b>Coffee and Posters - Day 2</b> Location: <a href="#">Kaleva Hall</a> <hr/> <b>Addressing GNSS Vulnerabilities in AAM: A Multi-Modal UAV Testbed for Redundant and Reliable Navigation</b> <u>Felix Rocco Matzke</u> , Tushar Jayesh Barot, Shreeja Sridharan, Nikolaus Ammann, Christoph Kessler, Hans-Gerd Maas, Frank H. P. Fitzek, Anette Eltner <hr/> <b>Smart Drones, Smarter Learning: Federated Self-learning Minimal Learning Machine Classifier for Real-Time Hyperspectral Image Classification</b> Anna-Maria Raita-Hakola, Xinying Kilpi-Chen, Ilkka Pölonen <hr/> <b>Under-canopy UAV Solutions for Forest Inventory – Challenges and Opportunities</b> Xinlian Liang, Guangzu Liu, Xintong Dou <hr/> <b>Autonomous Drone Navigation in Forest Environments Using Deep Learning</b> Guglielmo Del Col, Väinö Karjalainen, Teemu Hakala, Eija Honkavaara <hr/> <b>Precise georeferencing of RGB and multispectral drone images without ground control points</b> <u>José Gonçalves</u> , Ana Bio, Manuel Meyer <hr/> <b>Under-Canopy UAV Global Path Planning for Tree DBH Estimation Using LiDAR</b> <u>Yang Chen</u> , Shuhang Zhang, Qian Sun, Hao Xiong, Wuming Zhang <hr/> <b>ORBIT: Optimized Routing for Bridge Inspection Toolkit. An open-source UAS flight path planning tool for comprehensive bridge inspections under realistic constraints</b> <u>Erkki Tobias Bartczak</u> , Maarten Bassier, Maarten Vergauwen <hr/> <b>On Voxel-Based Sampling of Planar Surface Areas from Photogrammetric UAV Data</b> <u>Petri Rönnholm</u> , Matti T. Vaaja <hr/> <b>An Automated Framework for Cadastral Parcel Adjustment Using UAV Orthophotos, SAM, and ICP</b> <u>Deni Suwardhi</u> , Muhammad Ihsan, Ratri Widyastuti, Nabila Sofia Eryan Putri, Sella Lestari Nurmaulia, Andri Hernandi <hr/> <b>UAS for Landscape and Architectural Survey: An Innovative Interdisciplinary Approach of Learning by Doing in the Bachelor Programs at Politecnico di Torino</b> Alessio Martino, Filiberto Chiabrande, Andrea Maria Lingua <hr/> <b>Bimodal MorphoCopter for Wildfire Suppression: Transforming Quadcopters to All-Terrain-Vehicles (ATV)</b> <u>Osman ACAR</u> , Eija HONKAVAARA, Selahattin SEFACI <hr/> <b>Real time solar panels heat point's detection with EDGE ViTs using thermal drone imagery</b> <u>Mouad Jabrane</u> , Imane Sebari, Kenza Ait El Kadi <hr/> <b>Application of UAV orthophoto and thermal imaging for municipal solid waste landfills monitoring</b> Olga Brovkina, Lukáš Fajmon, Miroslav Píkl, František Zemek
3:30pm - 5:00pm	<b>Technical Program - UAVG6: Novel UAV Computer Vision Systems and Algorithms</b> Location: <a href="#">Kaleva</a> <hr/> <b>Real-Time Bundle Adjustment for Ultra-High-Resolution UAV Imagery Using Adaptive Patch-Based Feature Tracking</b> <u>Selim Ahmet Iz</u> , Francesco Nex, Norman Kerle, Henry Meissner, Ralf Berger <hr/> <b>A Robust Integrated Approach for Near Real-Time Seamless Orthomosaic Generation Using Off-the-Shelf UAVs for Ultra-High Resolution Mapping Applications</b> <u>Muhammad Farhan Humayun</u> , Ali Salmasi, Jiaqiang Zhang, Tomi Westerlund, Jukka Heikkonen <hr/> <b>Robust UAV Image Mosaicking Using SIFT and LightGlue</b> Sung Hyeon Kim, <u>Taejung Kim</u> <hr/> <b>Distortion Invariant Optical Calibration for Lightweight Airborne Imaging Spectrometry</b> Julien Burkhard, Jesse Lahaye, <u>Laurent Valentin Jospin</u> , Jan Skaloud <hr/> <b>Systematic Error Reduction in UAV-Based Laser Scanning by Using RTS</b>

André Cornelißen, Ansgar Dreier, Felix Esser, Gereon Tombrink, Lasse Klingbeil, Heiner Kuhlmann

---

**Misalignment estimation of a lightweight laser scanning system with static calibration**

Marcela Vale Machado, Antonio Maria Garcia Tommaselli, 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 - 10:30am	<b>Technical Program - UAVG7: Cutting-Edge UAV Robotics: Navigation, Mapping, and Autonomy 2</b> Location: <a href="#">Kaleva</a>  9:00am - 9:30am <b>Beyond the Next-Best-View: Machine Learning and Computer Vision for the Exploration and 3D Mapping of Large Scenes</b> Vincent Lepetit <hr/> 9:30am - 9:45am <b>Autonomous UAV 3D Reconstruction using Prediction-Based Next Best View</b> <u>Ziwen Wang</u> , Bashar Alasdik, Francesco Nex <hr/> 9:45am - 10:00am <b>Combining soft robotics and active-laser induced fluorescence for environmental monitoring: Evaluating the drone-scenario of the I-Seed project</b> Lammert Kooistra, Hasib Mustafa, Domantas Girzidas, Chenglong Zhang, Berry Onderstal, Harm Bartholomeus <hr/> 10:00am - 10:15am <b>SMARTNav: A Visual-Inertial Dataset for Reliable Robotic State Estimation</b> <u>Hojat Mirtajadini Goki</u> , Abeje Mersha, Mohammad Aldibaja <hr/> 10:15am - 10:30am <b>Integrating Pre-Harvest UAV Scans to Enhance Harvester Tree Localization Accuracy</b> Evgeny Lopatin, Kari Väätäinen, Harri Kaartinen, Heikki Hyyti, Lauri Sikanen, Yrjö Nuutinen, Mauricio Acuna
10:30am - 11:00am	Coffee Break - Day 3 Location: <a href="#">Kaleva Hall</a>
11:00am - 12:15pm	<b>Technical Program - UAVG8: Uncrewed Remote Sensing Systems for Aquatic Environments</b> Location: <a href="#">Kaleva</a>  11:00am - 11:15am <b>Novel robotic mapping system for freshwater environments</b> <u>Jukka Matias Mäki-Leppilampi</u> , Heikki Hyyti, Harri Kaartinen <hr/> 11:15am - 11:30am <b>Comparative Analyses for Determining Shallow Water Bathymetry from UAVs: a Case Study in the Adriatic Sea</b> Tea Duplančić Leder, Nenad Leder <hr/> 11:30am - 11:45am <b>Performance Evaluation of Drone Operated Dual Waveform Bathymetric LiDAR</b> Joonas Kousa, Teemu Hakala, Antero Kukko, <u>Harri Kaartinen</u> <hr/> 11:45am - 12:00pm <b>Phenological and Species-Level Classification of Aquatic Invasive Plants Using UAV Multispectral Imagery and Machine Learning</b> Daniel H. C. Salim, Caio C. S. Mello, Gabriel Pereira, Raian V. Maretto, Frederico S. Machado, Camila C. Amorim <hr/> 12:00pm - 12:15pm <b>UAV for flooding risk assessment in a new Dam Construction in Northeast Mexico</b> Aylet Aguilar Vega, Fabiola D. Yépez-Rincón, Kevin D. Rodríguez Gonzalez, Dariela Vázquez, Adrián L. Ferriño Fierro, Víctor H. Guerra Cobián
12:30pm - 1:30pm	Lunch - Day 3
1:30pm - 3:00pm	<b>Technical Program - UAVG9: Next-Generation AI for UAVs</b> Location: <a href="#">Kaleva</a>  1:30pm - 1:45pm <b>Advancements on Semantic Real-Time UAV Mapping</b> <u>Marc David Haubenstock</u> , Jules Salzinger, Michael Schwingshackl, Felix Bruckmüller, Christoph Sulzbachner, Phillipp Fanta-Jende <hr/> 1:45pm - 2:00pm <b>Implementing real-time wildfire detection using lightweight object-detection models and machine vision sensor on Raspberry Pi 5: Fireframe, a practical framework</b> <u>Jukka Joutsalainen</u> , Maxim Vitikainen, Juuso Lehrbäck, Alexander Goldhill, Anna-Maria Raita-Hakola

---

2:00pm - 2:15pm

**An End-to-End UAV–Cloud–AI Pipeline for Infrared-Based Real-Time Person Detection in SAR Missions**

Seunghyun Kim, Jeonghyo Oh, Younggon Oh, Impyeong Lee

---

2:15pm - 2:30pm

**The End of Overfitting for UAV Applications - Self-Supervised Pretraining on Multispectral UAV Data**

Jurrian Doornbos, Önder Babur

---

2:30pm - 2:45pm

**Domain Generalization in Deep Learning for Forest Health Monitoring Using Multispectral UAS Data**

Emma Jenni Johanna Turkulainen, Raquel Alves de Oliveira, Niko Koivumäki, Päivi Lyytikäinen-Saarenmaa, Roope Näsi, Mikko Peltö-Arvo, Johanna Tuviala, Eija Honkavaara

---

2:45pm - 3:00pm

**Tree Species Classification Using Majority Voting Approach on UAV Raw Images**

Tomohiro Mizoguchi, Daisuke Tsukano, Hideki Ogawa

---

3:00pm

Closing Ceremony

---