
Workshop on Applied Vision (AV 2026)

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Abstract

This is the editorial information of the workshop "Applied Vision (AV 2026)" of the AIROV Event. The workshop serves as a platform for exchanging research progress and projects within the OAGM community, focusing on interdisciplinary research in computer vision and pattern analysis. It aims to foster collaboration among Austrian and nearby research groups, addressing topics such as 3D vision, cultural heritage, industrial assistance systems, and more. The program includes an invited talk on applied vision solutions across domains such as space and defense, alongside contributed talks covering various topics in applied vision. In addition, organizers and program committee members are listed, highlighting their contributions to the event's success.

1 Workshop Description

The workshop provides a platform for presentation and discussion of research progress, as well as current projects within the OAGM community. We additionally focus on interdisciplinary research of computer vision and pattern analysis in the context of Applied Vision. The aim is to bring together Austrian and nearby located groups, researchers, and students working on interdisciplinary topics for discussion and establishing potential collaborations.

Contributions to the workshop cluster around the following topics:

- 3D vision, stereo, and structure from X
- Animal and plant phenotyping
- Cultural heritage
- Cyber-physical systems
- Document analysis
- Embedded and mobile computer vision / machine learning
- Explainability, ethics, and fairness in computer vision / machine learning
- Image denoising, restoration & enhancement
- Image, video, and multimodal retrieval
- Industrial assistance systems

The Third Austrian Symposium on AI and Vision (AIROV26).

- Inspection and quality assurance
- Motion and tracking
- Multi- and hyperspectral image analysis
- Object/scene detection, recognition, and categorization
- Pattern analysis (visual and non-visual data)
- Precision agriculture and precision forestry
- Remote sensing and earth observation
- Sensors and information fusion
- Video analysis and event recognition
- Vision datasets, benchmarking, and performance evaluation

A total of 21 papers were submitted to the Applied Vision workshop, with 12 papers accepted for oral and poster presentation.

2 Program

2.1 Invited Talk

Bridging Domains: Practical Computer Vision from Defence to Space

- **Dipl.-Ing. Dr. Thomas Riel**, Founder and General Manager of Fantana GmbH, Vienna, Austria; an aerospace and defence technology company specialising in intelligent opto-mechatronic systems.

Thomas Riel¹ is the founder and General Manager of Fantana GmbH in Vienna, where he bridges the gap between academic research and field-deployed systems in defence, space, and industrial settings. His current work spans electro-optical drone detection and tracking, onboard image processing for Earth observation satellites, and machine-learning-driven metrology for industrial production lines. He holds a PhD in Opto-Mechatronics from TU Wien and is actively involved in ESA-, EDA- and EDF-funded R&D initiatives, collaborating with Austrian and European aerospace partners.

Abstract – The threshold for high-performance computer vision and intelligent systems is dropping rapidly. AI-assisted development tools and the widespread proliferation of powerful, affordable processing hardware are enabling a broad range of applications that were until recently reserved for well-funded research projects. One domain where this shift is becoming obvious to everyone is the modern battlefield, where autonomous robots are being adopted at unprecedented scale (from UAV to UUV). Their capabilities grow with every iteration, yet truly autonomous operations remain an unsolved challenge and the bottleneck of real time communication remains. Space as another frontier is experiencing a similar disruption: Earth observation satellites are gaining increasingly powerful onboard processing capabilities, while in-orbit servicing missions and deep-space probes place ever greater demands on autonomous visual navigation and decision-making. Across both domains, the core technical challenges converge: real-time inference on edge hardware under strict size, weight, and power constraints, and reliable operation without human-in-the-loop. This talk presents how Fantana, an Austrian SME operating at the intersection of space, defence and industry, navigates this rapidly changing landscape and transfers lessons learned between domains.

2.2 Contributed talks

First Session: Wednesday April 15, 2026, 09:00-10:30

- **Roland Perko (JOANNEUM RESEARCH)**, Stefanie Onori-Wechtitsch (JOANNEUM RESEARCH), Helmut Neuschmied (JOANNEUM RESEARCH), Peter Schallauer (JOANNEUM RESEARCH), Katharina Hofer-Schmitz (JOANNEUM RESEARCH), Michaela Stolz (biohelp), *"AI-Based Optimization of Roadside Mowing Operations in Austria"* (Short Paper)

¹<https://fantana.at>

- **Christian Schweighofer (FH OOE)**, *"Obstacle Detection Pipeline using Monocular Depth Estimation in Mobile Robotics"* (Short Paper)
- **Alexander Dvorak (TU Wien)**, Michael Nowak (TU Wien), Tessa Pulli (TU Wien), Markus Vincze (TU Wien), *"GraspGen+HSR: Adapting Simulation-Trained 6-DoF Grasping to Real Service Robots Without Retraining"* (Full Paper)
- **Matvey Ivanov (TU Wien)**, Markus Vincze (TU Wien), Peter Hönig (TU Wien), *"Diffusion Edge Detection Of Texture-less Objects"* (Full Paper)
- **Thummanoon Kunanuntakij (TU Wien)**, Dominik Schörkhuber (TU Wien), Margrit Gelautz (TU Wien), *"Synthetic Skeletal Pose Pre-training to Mitigate Data Scarcity in In-Cabin 2D-to-3D Pose Lifting"* (Short Paper)

Second Session: Wednesday April 15, 2026, 11:00-12:30

- **Ido Akov (Austrian Institute of Technology)**, Roman Pflugfelder (Austrian Institute of Technology), Daniel Cremers (Technical University of Munich), *"Fourier contrast optimization for occluded motion estimation"* (Short Paper)
- **Martin Welk (UNIT TIROL)**, *"Spot and Edge Feature Based Estimation of Point-Spread Functions for Image Deconvolution"* (Full Paper)
- **Donghwan Lee (Yonsei University)**, Wooju Kim (Yonsei University), *"Organ Level Representation Learning for Region Based Medical Image Retrieval"* (Full Paper)
- Christof Kauba (University of Salzburg), **Andreas Uhl (University of Salzburg)**, *"Effect of polarization filters on hand vein sample image quality"* (Short Paper)
- **Olaf Kaehler (JOANNEUM RESEARCH)**, Werner Bailer (JOANNEUM RESEARCH), Georg Thallinger (JOANNEUM RESEARCH), *"Intelligent Augmentation Methods for Training Defect Detection on Circuit Boards"* (Full Paper)
- **Achraf Guenounou (University of Udine)**, Jean-Philippe Andreu (JOANNEUM RESEARCH), Harald Ganster (JOANNEUM RESEARCH), *"Explainable AI for Efficient Hyperspectral Band Selection in Textile Recycling: A Score-CAM Approach"* (Full Paper)
- **Jean-Philippe Andreu (JOANNEUM RESEARCH)**, Maria Jernej (JOANNEUM RESEARCH), Maximilian Klammer (BOKU University), Benjamin Kromoser (BOKU University) *"Assessing Compressive Strength of Reclaimed Clay Bricks Using SWIR Hyperspectral Imaging and Deep Learning"* (Short Paper)

Organizers

- DI Dr. Harald Ganster (JOANNEUM RESEARCH)
- DI Dr. Florian Kleber (TU Wien)
- Priv.-Doz. DI Dr. Roland Perko (JOANNEUM RESEARCH)
- DI Dr. Gernot Stübl (FH OOE)
- DI Dr. Martina Uray (JOANNEUM RESEARCH)

Programme Committee

- Werner Bailer - JOANNEUM RESEARCH
- Csaba Beleznaï - Austrian Institute of Technology
- Kristian Bredies - University of Graz
- Pedro Hermosilla Casajus - TU Wien
- Friedrich Fraundorfer - Graz University of Technology
- Harald Ganster - JOANNEUM RESEARCH
- Margrit Gelautz - TU Wien
- Katharina Hofer-Schmitz - JOANNEUM RESEARCH

- Martin Kappel - TU Wien
- Florian Kleber - TU Wien
- Marco Peer - University of Fribourg
- Roland Perko - JOANNEUM RESEARCH
- Horst Possegger - Graz University of Technology
- Christoph Praschl - University of Applied Sciences Upper Austria
- Peter M. Roth - University of Veterinary Medicine, Vienna
- Robert Sablatnig - TU Wien
- Josef Scharinger - JKU
- Gernot Stübl - FH OOE, Wels
- Martina Uray - JOANNEUM RESEARCH
- Martin Welk - UMIT TIROL
- Martin Winter - JOANNEUM RESEARCH
- Markus Vincze - TU Wien
- Gerald Zauner - University of Applied Sciences Upper Austria
- Gerald Zwettler - University of Applied Sciences Upper Austria