
Workshop on Digital Transformation of Agriculture & Animal Science (DTAAS)

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Abstract

The DTAAS workshop, continuing the tradition of previous workshops of AI and Robotics in Agriculture and Digital Transformation of Animal Science Research, provides an interdisciplinary platform to explore how digital technologies can revolutionize animal science and agricultural research. The workshop bridges the gap between fundamental research in AI, robotics, and vision and their practical application in complex biological environments. By uniting academic researchers, industry innovators, and practitioners, it fosters a multi-disciplinary community that moves beyond siloed approaches to create integrated systems that are technologically advanced, ethically sound, and economically viable.

Organizers

- Sebastian Gruber (FH Wiener Neustadt / Campus Francisco Josephinum)
- Mark A.M. Kramer (University of Veterinary Medicine, Vienna)
- Peter Riegler-Nurscher (Josephinum Research)
- Peter M. Roth (Webster Vienna Private University / University of Veterinary Medicine, Vienna)

Program Committee / Reviewers

- Ufuk Can Bicici (Josephinum Research)
- Anne Busch (FH Wiener Neustadt)
- Sebastian Gruber (University of Applied Sciences Wiener Neustadt)
- Gudrun Kinz (BOKU University)
- Mark A.M. Kramer (University of Veterinary Medicine, Vienna)
- Mathias Lux (University of Klagenfurt)
- Eva Zedlacher (Webster Vienna Private University)

Keynote Speakers

- Prof. Dr. Holger A. Volk (Tierärztliche Hochschule Hannover)
(cancelled due to private reasons)

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

Workshop Description

The agricultural sector faces several critical challenges, including increasing food production for a growing population, reducing environmental footprints under climate change, transitioning to sustainable agricultural practices, and meeting rising animal welfare standards. Addressing these demands requires fundamental digital transformation rather than incremental change. AI and robotics are increasingly recognized as key technologies to enable resource-efficient farming, automate labor-intensive tasks, and support climate change adaptation, significantly contributing to environmental protection while enhancing productivity and resilience.

To tackle these challenges, the DTAAS workshop, continuing the tradition of previous workshops of AI and Robotics in Agriculture and Digital Transformation of Animal Science Research, provides an interdisciplinary platform to explore how digital technologies can revolutionize animal science and agricultural research. The workshop bridges the gap between fundamental research in AI, robotics, and vision and their practical application in complex biological environments. By uniting academic researchers, industry innovators, and practitioners, it fosters a multi-disciplinary community that moves beyond siloed approaches to create integrated systems that are technologically advanced, ethically sound, and economically viable.

Through interdisciplinary collaboration, the workshop aims to accelerate the integration of advanced digital solutions into animal science and agricultural practice. Attendees will gain insights into current trends, challenges, and future directions at this rapidly evolving intersection, ultimately contributing to more efficient, sustainable, and resilient food production systems. The workshop will act as a catalyst for new collaborations, ensuring that the Austrian and international research landscape remains at the forefront of the global AgTech revolution.

General Topics of Interest:

- AI and Robotics in livestock, Precision Livestock Farming (PLF)
- Smart implements, Edge AI
- Digital twins
- Benchmarks and datasets
- Privacy and ethics of agricultural data
- Robotics in weeding and plant protection, harvesting robotics
- Remote sensing and modelling
- Pest and disease detection
- Yield prediction
- Decision Support Systems
- Animal and Plant Phenotyping
- Climate-resilient farming systems
- Soil monitoring and management

Program

Time	Paper Title	Speaker/Authors
09:15–09:30	Opening (General + Session I)	<i>Peter M. Roth</i>
09:30–09:55	Vision-based detection of pain and nest-building behaviors in sows within commercial farrowing pens	<i>Peter Helf</i> and Maciej Oczak
09:55–10:20	Online adaptive path planning of UAVs for weed detection	<i>Wolfgang Pitzl</i> , Lukas Lachmann, Raphael Völker, and Peter Riegler-Nurscher
10:20–11:00	<i>Coffee Break</i>	
11:00–11:05	Opening (Session II)	<i>Sebastian Gruber</i>
11:05–11:30	Lightweight Classification of Canine Eye Diseases	Isselmou Abdarahmane and <i>Peter M. Roth</i>
11:30–11:55	Measuring the Specific Gravity of Urine of Dogs Using Digital Refractometers	<i>Martina Jezik</i> and Peter M. Roth
11:55–12:20	Interactive VetMap of Austria	Valentina Dolin, Gudrun Kinz, Martina Jezik, Mark A.M. Kramer, and <i>Peter M. Roth</i>
12:20–12:30	Discussion and Closing	<i>Mark A.M. Kramer</i>

Acknowledgments

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