



22.07.2022

Program at a glance:

14.09.2022 (Wed)		15.09.2022 (Thu)		16.09.2022 (Fri)	
Registration (8:00 – 8:50)					
Plenary session (9:00 – 9:45)		Plenary session (9:00 – 9:45)		Guided tour of the monastery (08:30 – 09:30)	TC meeting (invited only) (08:30 – 09:30)
Coffee break (9:45 – 10:00)		Coffee break (9:45 – 10:00)		Track A7 (09:30 – 10:30)	Track B7 (09:30 – 10:30)
Track A1 (10:00 – 12:00)	Track B1 (10:00 – 12:00)	Track A4 (10:00 – 12:00)	Track B4 (10:00 – 12:00)	Closing ceremony (10:30– 10:45)	
Lunch break (12:00 – 13:00)		Lunch break (12:00 – 13:00)		Technical excursion (11:00 – 15:30)	
Track A2 (13:00 – 15:00)	Track B2 (13:00 – 15:00)	Track A5 (13:00 – 15:00)	Track B5 (13:00 – 15:00)		
Coffee break (15:00 – 15:30)		Coffee break (15:00 – 15:30)			
Track A3 (15:30 – 17:00)	Track B3 (15:30 – 17:00)	Track A6 (15:30 – 17:00)	Track B6 (15:30 – 17:00)		
		Banquet (19:00 – 22:00)			

The conference proceedings will be distributed at the conference.

Day 1 – 14.09.2022, Wednesday

9:00 – 9:45 Keynote Presentation 1

10:00 – 12:00, Track A1: Robotics and Navigation in Agriculture and Forestry

10:00 – 10:30	Development of an electric vehicle robot for vineyards: Optimal route planning and a turning method on an irregularly shaped field Yoshitomo Yamasaki, Noboru Noguchi
10:30 – 11:00	Building a Robot Tractor Using Commercial Components and Widely Used Standards Juha Backman, Raimo Linkolehto, Madis Lemsalu, Jere Kaivosoja
11:00 – 11:30	Modeling of Tire Lateral Forces in Non-linear 6-DOF Simulations for Off-Road Vehicles Tabish Badar, Juha Backman, Arto Visala
11:30 – 12:00	Slip Detection and Control for Harvesting Machines Mirjan Heubbaum, Philipp Münch, Giuliano Costantini, Tobias Peschke, Daniel Görges

10:00 – 12:00, Track B1: Image Processing with Neural Networks in Agriculture 1

10:00 – 10:30	Real-Time CNN-based Computer Vision System for Open-Field Strawberry Harvesting Robot Madis Lemsalu, Victor Bloch, Juha Backman, Matti Pastell
10:30 – 11:00	Detecting and Localizing Strawberry Centers for Robotic Harvesting in Field Environment Zixuan He, Manoj Karkee, Qin Zhang
11:00 – 11:30	Spatio-temporal Mapping of Cotton Blooms Appearance Using Deep Learning Vaishnavi Thesma, Canicius Mwitta, Glen Rains, Javad Mohammadpour Velni
11:30 – 12:00	A Data-Driven Monitoring System for the Early Pest Detection in the Precision Agriculture of Hazelnut Orchards Martina Lippi, Renzo Fabrizio Carpio, Mario Contarini, Stefano Speranza, Andrea Gasparri

13:00 – 15:00, Track A2: Positioning Technologies for Agricultural Vehicles

13:00 – 13:30	A vision-based navigation system for an agricultural autonomous tractor Sristi Saha, Tsuyoshi Morita, Ricardo Ospina, Noboru Noguchi
13:30 – 14:00	Ploughing Furrow Detection Based on 3D LiDAR Sensor Data Reinhold Poscher, Riikka Inkeri Soitinaho, Timo Oksanen
14:00 – 14:30	Positioning and Attitude determination for Precision Agriculture Robots based on IMU and Two RTK GPSs Sensor Fusion David Vieira, Rodolfo Orjuela, Matthias Spisser, Michel Basset
14:30 – 15:00	2D LiDAR based object detection and tracking on a moving vehicle Riikka Inkeri Soitinaho, Moll Marcel, Timo Oksanen

13:00 – 15:00, Track B2: Image Processing with Neural Networks in Agriculture 2

13:00 – 13:30	Trellis wire detection for obstacle avoidance in apple orchards Santosh Bhusal, Uddhav Bhattarai, Manoj Karkee
13:30 – 14:00	Improved ResNet Based Apple Leaf Diseases Identification Ruirou Ding, Yongliang Qiao, Xianghai Yang, Honghua Jiang, Yunqi Zhang, Ziqi Huang, Dongwei Wang, Huixiang Liu
14:00 – 14:30	Semantic Image Segmentation with Deep Learning for Vine Leaf Phenotyping Petros Tamvakis, Chairi Kiourt, Solomou Alexandra, Ioannakis George, Nestoras Tsirliganis
14:30 – 15:00	Investigation of the added value of CycleGAN on the plant pathology dataset Bart van Marrewijk, Gerrit Polder, Gert Kootstra

15:30 – 17:00, Track A3: Positioning and Navigation for UAV in Agriculture and Forestry

15:30 – 16:00	LiDAR-odometry based UAV pose estimation in young forest environment Issouf Ouattara, Vesa Korhonen, Arto Visala
16:00 – 16:30	UAV-UGV Collaborative Localisation with Ambiguity Aversion by UAV Re-positioning A.H.T.E. De Silva, Jay Katupitiya, Andrey V. Savkin
16:30 – 17:00	Sensor optimization for altitude estimation of spraying drones in vineyards Thomas Severin, Dirk Söffker

15:30 – 17:00, Track B3: Sensing and Perception in Agriculture

15:30 – 16:00	Practical use of Deep Learning Based Daily Stem Elongation Measurement of Tomato Plants in Two Commercial Greenhouses Seitaro Toda, Tastuya Higuchi, Tetsutaka Sakamoto, Takeru Kanoh, Naomichi Fujiuchi, Kotaro Takayama
16:00 – 16:30	Determining fresh tomato weight using depth and rgb images from an AR headset Tim Daalen van, Joseph Peller, Jos Balendonck
16:30 – 17:00	Canopy Density Estimation of Apple Trees Paudel Achyut, Manoj Karkee, Joseph R. Davidson, Cindy Grimm

Day 2 – 15.09.2022, Thursday

9:00 – 9:45 Keynote Presentation 2

10:00 – 12:00, Track A4: Modeling and Estimation in Horticulture and Greenhouses

10:00 – 10:30	Persistent Monitoring for Indoor Farming using Static and Mobile Sensors Karlisa Priandana, Made Widhi Surya Atman, Azwirman Gusrialdi
10:30 – 11:00	State Estimation of Pest Populations subject to Intermittent Measurements Nicolas Bono Rossello, Luca Rossini, Stefano Speranza, Emanuele Garone
11:00 – 11:30	Nonlinear Observability Analysis and Joint State and Parameter Estimation in a Lettuce Greenhouse using Ensemble Kalman Filtering Sjoerd Boersma, Simon Van Mourik, Bolai Xin, Gert Kootstra
11:30 – 12:00	Irrigation control by mimicry Jose Maria Manzano, Jorge Bareiro, Gabriela Belén Cáceres Rodríguez, Jose R. Salvador, Pablo Millan Gata

10:00 – 12:00, Track B4: Image Processing in Agriculture

10:00 – 10:30	Dimensionality Reduction of High-throughput Phenotyping Data in Cotton Fields Amanda Rose Issac, Himani Yadav, Glen Rains, Javad Mohammadpour Velni
10:30 – 11:00	Early Detection of Toppling Susceptibility in Tulip Using Spectral Imaging Selwin Hageraats, Gerrit Polder, Sjoerd van Vilsteren, John Trompert, Jeroen Wildschut
11:00 – 11:30	Stereo-vision solution for measuring Plant Area Index in high tunnel crops Alejandro Tapia Córdoba, Luis Orihuela Espina, James Brian Romaine, Jose R. Salvador
11:30 – 12:00	A Drone-based Prototype Design and Testing for Under-the-canopy Imaging and Onboard Data Analytics R. Oliver Zanone, Tairan Liu, Javad Mohammadpour Velni

13:00 – 15:00, Track A5: Control and Automation in Horticulture and Greenhouses

13:00 – 13:30	Robust sample-based model predictive control of a greenhouse system with parametric uncertainty Sjoerd Boersma, Cong Cong Sun, Simon Van Mourik
13:30 – 14:00	Deficit irrigation-based growth control of maize plants using hybrid model predictive / trellis decoding algorithm Lina Owino, Dirk Söffker
14:00 – 14:30	A hybrid dynamical systems approach to smart irrigation Riccardo Bertollo, Gabriela Belén Cáceres Rodríguez, Pablo Millan Gata, Mario Pereira, Luca Zaccarian
14:30 – 15:00	Economic model predictive control for interactions of water sources connected crop field Gabriela Belén Cáceres Rodríguez, Mario Pereira, Pablo Millan Gata

13:00 – 15:00, Track B5: Information Systems

13:00 – 13:30	Connecting agricultural robots and smart implements by using ISO 11783 communication Dimitrios S. Paraforos
13:30 – 14:00	Event Ontology about Wheat Cultivation Asya Stoyanova-Doycheva, Emil Doychev, Vanya Ivanova, Vladimir Valkanov
14:00 – 14:30	Approach for modeling and implementation of an intelligent system for livestock cattle on pastures Evgeni Valchev Evgeni Valchev, Pencho Malinov, Todorka Glushkova
14:30 – 15:00	Semantic Knowledge for Autonomous Smart Farming Ganesh Ramanathan, Danai Vachtsevanou, Garcia Kimberly, Jeremy Lemee, Samuele Burattini, Kenan Bektas, Simon Mayer

15:30 – 17:00, Track A6: Process Control of Agricultural Implements

15:30 – 16:00	In-field Static Spread Pattern of a Centrifugal Spreader by Considering Field Topography Galibjon M. Sharipov, Andreas Heiß, Sulaymon Eshkabilov, Hans W. Griepentrog, Dimitrios S. Paraforos
16:00 – 16:30	Introducing Metrics to Analyse the Performance of Automatic Section Control for Agricultural Machines Samuel Brodie, Timo Oksanen
16:30 – 17:00	Condition Monitoring using Convolutional Neural Network in Agricultural Machinery - Use Case: Disc Mower Michael Jaumann, Ertug Olcay, Timo Oksanen

15:30 – 17:00, Track B6: Sensing and Estimation in Agriculture 1

15:30 – 16:00	Predicting equilibrium moisture contents of mushrooms by NARX neural network and first order kinetic modelling approaches Dimitrios Argyropoulos, Dimitrios S. Paraforos
16:00 – 16:30	Modeling and Simulation of Aquaculture Systems Sandra Viehöfer, Philipp Brauer, Dirk Söffker
16:30 – 17:00	Vector Field based Tracking of a Dynamic Wildfire Boundary with an UAV Licheng Feng, Jay Katupitiya

Day 3 – 16.09.2022, Friday

8:30 – 9:30, Guided Tour of Monastery

8:30 – 9:30, TC Meeting (invited only)

9:30 – 10:30, Track A7: Process Control of Harvesting Machines

09:30 – 10:00	Combine Harvesting Low Loss Rate Strategy Optimum Based on Bayesian Network Yehong Liu, Dong Sun, xindong Ni, Shumao Wang, Xin Wang
10:00 – 10:30	CNN-based Crop-Flow-Density and Breakage-Ratio Control for Sugar Beet Harvester Steffen Schwich, Jan Schattenberg, Ludger Frerichs

9:30 – 10:30, Track B7: Sensing and Estimation in Agriculture 2

09:30 – 10:00	Results on spatio-temporal estimation of temperature and soil moisture in La Colmena Jose Maria Manzano, Luis Orihuela Espina, Erid Pacheco, Mario Pereira
10:00 – 10:30	3D Map Reconstruction of an Orchard using an Angle-Aware Covering Control Strategy Martina Mammarella, Cesare Donati, Takumi Shimizu, Masaya Suenaga, Lorenzo Comba, Alessandro Biglia, Kuniaki Uto, Takeshi Hatanaka, Paolo Gay, Fabrizio Dabbene

10:30 – 10:45, Closing Ceremony

11:00 – 15:30, Technical Excursion

Details will be announced soon.