Workshop on AI-driven Data Engineering and Reusability for Earth and Space Sciences (DARES'25)

Co-located with ECAI 2025

Saturday 25 October 2025

9:00-9:10	**Welcome and introduction to the workshop**. Iraklis Klampanos (University of Glasgow, UK), Manolis Koubarakis (National and Kapodistrian University of Athens, Greece) and Antonis Troumpoukis (NCSR "Demokritos", Greece)
9:10-9:50	**Keynote 1**. Ioannis Papoutsis (National Technical University of Athens, Greece)
9:50-10:10	**Comovement in Geo-referenced Time Series: A Copula-Based Approach for Clustering**. Alessia Benevento, Fabrizio Durante and Roberta Pappadà
10:10-10:30	**Knowledge Graph-Enhanced Retrieval-Augmented Generation for Earth Observation Data**. Roxanne El Baff, Ben Schluckebier and Tobias Hecking
10:30-11:00	*Coffee break*
11:00-11:20	**Assessing Synthetic Data Quality and Model Generalization for Planetary Imagery**. Clara Salditt, Karan Molaverdikhani and Barbara Ercolano
11:20-11:40	**Weather Prediction on Mars as a Multivariate Time Series Forecasting Problem**. Sagar Uprety, Amel Bennaceur, Carlos Gavidia-Calderon, James Holmes, Manish Patel and Kylash Rajendran
11:40-12:00	**Explainable Spatial Modeling of Groundwater Nitrate Concentrations in the Netherlands**. Iulia Capralova and Juan Cardenas-Cartagena
12:00-12:20	**DA4DTE: An agentic system for enhancing the accessibility of Digital Twins of Earth**. Myrto Tsokanaridou, Jakob Heinrich Hackstein, Genc Hoxha, Sergios-Anestis Kefalidis, Konstantinos Plas, Begum Demir, Manolis Koubarakis, Marco Corsi, Cristian Leoni, Giorgio Pasquali, Chiara Pratola, Simone Tilia and Nicolas Longepe
12:20-14:00	*Lunch break*
14:00-14:50	**Keynote 2**. Sašo Džeroski (Jožef Stefan Institute, Slovenia)
14:50-15:10	**Vessel Trajectory Prediction Using Robust AIS Preprocessing and Dual-Self-Attention GRU**. Marilena Sinni and Dimitris M. Kyriazanos
15:10-15:30	**LLM-Driven Knowledge Graph Construction from Earth Observation Data for Extreme Events**. Theodoros Aivalis, Iraklis A. Klampanos and Antonis Troumpoukis
15:30-16:00	*Coffee break*
16:00-16:20	**Elevation Data Integration Approaches for Deep Learning-Based 2-m Temperature Downscaling**. Antigoni Moira, Stelios Karozis, Theodoros Giannakopoulos, Effrosyni Karakitsou, Nikolaos Gounaris and Athanasios Sfetsos
16:20-16:40	**An explainable multi-source unsupervised domain adaptation framework using contrastive learning and adaptive clustering for remote sensing scene classification**. Binu Jose, Pranesh Das, Ebrahim Ghaderpour and Paolo Mazzanti
16:40-17:00	**A deep learning approach to evaluate individual predictors for extreme precipitation in Greece**. Vasileios Vatellis, Stelios Karozis, Iraklis Klampanos, Antonis Troumpoukis and Antonis Gkanios
17:00-17:15	**Main takeaways and final thoughts from the Workshop**