



8TH EDITION **PHARES 2025**

From 17 to 19 January 2025 at the
 Hôtel Royal Rihana, Ain Draham, Tunisia.

THEMES

GEOMETRIC MACHINE LEARNING
 DEEP LEARNING
 HYPERSPECTRAL DATA
 CLASSIFICATION
 DIMENSION REDUCTION
 RIEMANNIAN COMPUTATION
 TRANSFORMERS
 NON-LINEAR MACHINE LEARNING
 NATURAL LANGUAGE PROCESSING
 COMPUTER VISION

APPLICATIONS

MEDICAL IMAGING
 AGRONOMY
 BIOLOGY
 REMOTE SENSING
 ARCHAEOLOGY
 CULTURAL HERITAGE
 MORPHING
 DATA AUGMENTATION

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Mohamed Amine Mezghich, ENSI, CRISTAL/GRIFT, Tunisia

Emna Ghorbel, SMU, CRISTAL/GRIFT, Tunisia

Organizing Committee

Achraf Ghorbel, ENSI, CRISTAL/GRIFT, Tunisia

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Ali Ben Abbess, MSE, RIADI-GDL, Tunisia

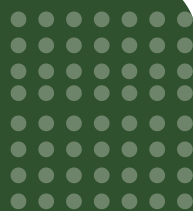
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Program



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2025

	Friday 17 / 01	Saturday 18 / 01	Sunday 19 / 01
08H30 - 09H30	Oral Session 1 : Advances in Deep Learning Session Chair "Majdi Jribi" 3 presentations of 20 minutes (15 min presentations + 5 min questions)	Oral Session 3 : Advanced Image Processing Techniques Session Chair "Mohamed Farah" 3 presentations of 20 minutes (15 min presentations + 5 min questions)	Cultural Visit
09H30 - 10H30	Oral Session 2 : Innovative Machine Learning Methods Session Chair "Mohamed Amine Mezghich" 3 presentations of 20 minutes (15 min presentations + 5 min questions)	Oral Session 4 : AI for Forecasting and Security Session Chair "Emna Ghorbel" 3 presentations of 20 minutes (15 min presentations + 5 min questions)	Cultural Visit
10H30 - 11H30	Coffee Break	Coffee Break	
11H30 - 12H30	Tutorial 1 Deep approaches, Riemannian theory, and invariant theory: comparison and convergence Prof. Faouzi Ghorbel Laboratory CRISTAL ENSI	Tutorial 2 Artificial Intelligence for Geospatial Applications: challenges and issues Prof. Riadh Ferah Laboratory RIADI ENSI	
12H30 - 14H00	Lunch	Lunch	
14H00 - 15H30	Poster Session 1 : Deep Neural Network Innovations Session Chair "Dorra Dhouib"	ArtsPi Meeting	
15H30 - 16H00	Guest speaker Prof. Mohamed Ferah (25 min presentation + 5 min questions)	ArtsPi Meeting	
16H00 - 17H30	Poster Session 2 : Applied Deep Learning Methods Session Chair "Ali Ben Abbess"	ArtsPi Meeting	
	Dinner	Dinner	



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N°	Session	Author	Title
1	Oral Session 1 : Advances in Deep Learning	Amal Araoud (CRISTAL/GRIFT laboratory, ENSI)	Dimensionality Reduction on the SPD Manifold: A Comparative Study of Linear and Non-linear Methods
2	Oral Session 1 : Advances in Deep Learning	Imen Smati (CRISTAL/GRIFT laboratory, ENSI)	Enhancing Deep Classifier Robustness through Contour Re-Parametrization
3	Oral Session 1 : Advances in Deep Learning	Manel Rhif (CRISTAL/GRIFT laboratory, ENSI)	A Hybrid Framework for Time Series Forecasting: Combining Wavelet Transforms and Deep Learning
4	Oral Session 2 : Innovative Machine Learning Methods	Achraf Ghorbel (CRISTAL/GRIFT laboratory, ENSI)	Comparison of Dimensionality Reduction Methods for Improving Explainability and Stability of Machine Learning Models
5	Oral Session 2 : Innovative Machine Learning Methods	Hand Zeinabidin (CRISTAL/GRIFT laboratory, ENSI)	New helical representation of elongated surface shapes based on an almost complete descriptor
6	Oral Session 2 : Innovative Machine Learning Methods	Moez Bouchoucha (TALAN)	Tunispeak : Open-source dataset for the bidirectional English -Tunisian translation
7	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Samah Kareem (ISIK University)	Religious Image Classification: A Comparative Analysis of Deep Learning Models
8	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Zaineb Bibani (CRISTAL/GRIFT laboratory, ENSI)	Data Augmentation Based on Quadratic Transformations
9	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Arwà Habbechi (CRISTAL/GRIFT laboratory, ENSI)	Ordered alignment of 3D faces for recognition
10	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Dorsaf Hmida (CRISTAL/GRIFT laboratory, ENSI)	Quaternion Squeeze and Excitation Networks: Mean, Variance, Skewness, Kurtosis As One Entity
11	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Chayma Chawechi (CRISTAL/GRIFT laboratory, ENSI)	Evaluating the reproducibility of Deep Neural Networks
12	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Abir Bousmina (RIADI laboratory, ENSI)	Explicabilité des Graph Neural Networks Temporels pour la Gestion des Risques de Catastroph
13	POSTER SESSION 1 : DEEP NEURAL NETWORK INNOVATIONS	Wafa Bakir (RIADI laboratory, ENSI)	Mapping Roman Roads through Remote Sensing: A study of the Carthage-Theveste Road

N°	Session	Author	Title
14	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Fares Braiek (CRISTAL/GRIFT laboratory, ENSI)	Action recognition from 3D human skeleton data
15	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Ayoub Brina (ISAAM)	Deep Learning for Vision-Based Navigation of Autonomous Underwater Robots
16	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Wiem Baazouzi (RIADI laboratory, ENSI)	Enhancing Multi-Answer KG Question Answering: Addressing Sparsity with Innovative Integration Methods
17	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Mariem Ayed (CRISTAL/GRIFT laboratory, ENSI)	3D Deep Neural Networks for Brain Tumor Classification in Medical Imaging
18	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Jarray Nouredine (CRISTAL/GRIFT laboratory, ENSI)	Multilayer Soil Moisture Estimation at fine spatial resolution: A case study of arid and semi-arid regions in Tunisia
19	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Manel Zouaoui (CRISTAL/GRIFT laboratory, ENSI)	Comparison of Federated Learning and Centralized Machine Learning for Image Compression using the QRes-VAE Model
20	POSTER SESSION 2 : APPLIED DEEP LEARNING METHODS	Mohamed Louay Rabah (CRISTAL/GRIFT laboratory, ENSI)	Enhancing Explainability in Medical Diagnostics
21	ORAL SESSION 3 : ADVANCED IMAGE PROCESSING TECHNIQUES	Mariam Jendoubi (CRISTAL/GRIFT laboratory, ENSI)	Robust Skin Lesion Segmentation Approach Combinig YOLOv8 and Level-Set Techniques
22	ORAL SESSION 3 : ADVANCED IMAGE PROCESSING TECHNIQUES	Farah Chouikhi (RIADI laboratory, ENSI)	Siamese Variational Autoencoder and Transfer Learning for Desertification Detection in Arid Regions of Tunisia Using Bi-Temporal Landsat Images
23	ORAL SESSION 3 : ADVANCED IMAGE PROCESSING TECHNIQUES	Douha Jerbi (CRISTAL/GRIFT laboratory, ENSI)	Morphing of 3D Face Surfaces : An SA(3)- Invariant Approach
24	ORAL SESSION 4 : AI FOR FORECASTING AND SECURITY	Aya Ferchichi (RIADI laboratory, ENSI)	Towards Counterfactual-Based Explainable Deep Learning for Causal Inference in Spatio- Temporal Signal and Image Forecasting
25	ORAL SESSION 4 : AI FOR FORECASTING AND SECURITY	Mahmoud Ghorbel (Polytechnic University of Hauts-de-France, France)	Hijacking Machine Learning models without Training Access
26	ORAL SESSION 4 : AI FOR FORECASTING AND SECURITY	Hanen Balti (RIADI laboratory, ENSI)	SmartSDGTunisia Project: Leveraging AI and Satellite Imagery to Drive Sustainable Development in Tunisia

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