

TAIMA 2026 PROGRAM

# Traitement & Analyse de l'Information

Méthodes et Applications

From 19 to 23 May 2026 at Sidi Dhrif





# TAIMA 2026 PROGRAM

Traitement & Analyse de l'Information  
Méthodes et Applications



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**F. Ghorbel**, CRISTAL/ENSI, Tunisia

**E. Ghorbel**, CRISTAL/ENSI, Tunisia

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# Foreword

TAIMA 2026, 13th Edition (Traitement et Analyse de l'Information : Méthodes et Applications) will take place from May 19 to May 23, 2026 in Sidi Dhrif & Carthage (Tunisia).

The conference sessions will be held from May 19 to May 21 at the Hotel Sidi Bou Saïd, followed by three high-level training sessions from May 22 to May 23 and June 2 to June 3 at IHEC.

TAIMA is a biennial event that brings together the international scientific community working in Data processing, analysis, and learning for signals and images. The conference aims to highlight the state-of-the-art, recent advances, and emerging methodologies in areas such as Artificial Intelligence, Machine Learning, Computer Vision, Signal Processing, and Data Science.

A special event, TAIMA Entreprise, will be organized on May 19, providing a unique platform where companies will present their innovations, exchange with researchers, and explore collaboration opportunities between academia and industry.

The conference welcomes contributions covering both theoretical and applied aspects, including algorithm design, modeling, systems, and real-world applications in fields such as biomedical imaging, remote sensing, cultural heritage, telecommunications, security, and emerging technologies.

In addition to scientific sessions (oral presentations, posters, and demonstrations), TAIMA 2026 will feature three advanced training programs:

- Machine & Deep Learning for Finance and Economics
- Equivariant and Geometric Machine & Deep Learning: Applications in Health & Biochemistry
- Texture & Color Image Analysis, Uncertainty, and Remote Sensing Applications using Aerial Images

These trainings aim to provide both strong theoretical foundations and practical hands-on experience on real-world problems.

TAIMA 2026 continues its mission of fostering high-level scientific exchange while strengthening connections with socio-economic sectors and industry partners.

# PROGRAM

|       | 19 May  | 20 May  | 21 May   | 22 May         | 23 May   | 25 May                                      |
|-------|---|---|--|----------------|----------|---|
| 9:00  | Registration  | OS 2<br>Invariant<br>Description<br>and Morphing<br>for Deep<br>Learning  | PS2<br>Geometric<br>Deep<br>Learning                       | Training       | Training | Training<br>Challenge and<br>certifications |
| 9:30  | PS1<br>Futur Vision AI<br>Applications              |   | PS3<br>AI Health   |                |          |   |
| 10:30 | Coffee break  |   |  |                |          |   |
| 11:00 | Opening   | SS1<br>Image<br>Analysis :<br>From<br>Measure to<br>Certified<br>Decision | SS3<br>Intelligent<br>Medicine                             | Training       | Training | Training<br>Challenge and<br>certifications |
| 11:45 | TAIMA<br>Entreprise                                 |   |  |                |          |   |
| 12:30 | Lunch   |   |  |                |          |   |
| 14:00 | OS 1<br>Geometry-<br>aware<br>Learning<br>Stability | SS2<br>Teledetection  | Cultural Visit<br>of the<br>historical city<br>of Carthage | Training       | Training | Cultural<br>Event                           |
| 15:30 | End of the Day                                      |   |  |                |          |   |
| 17:00 | Welcome<br>Cocktail                                 |   |  | End of the Day |          |   |
| 20:00 |   | Gala Dinner   |  |                |          |   |

## Registration

Poster Session 1 PS1 : Futur Vision AI Applications  
Chairs : Mc. Dorsaf Sebai & Dr. Med Amine Mezghich

9:30 a.m. - 10:30 a.m.

**PS1-1: Manel Zouaoui, Dorsaf Sebai & Faouzi Ghorbel**, Compression d'images par apprentissage fédéré (CRISTAL Laboratory, GRIFT, ENSI, Tunisia)

**PS1-2: Riadh Hasnaoui**, Classification des terres agricoles par imagerie Sentinel-2 : étude comparative CNN et hybrides CNN-Vision Transformer (ENSI, Université de La Manouba, LARIA, Tunisia)

**PS1-3: Eya Ben Hmida, Sarra Abidi & Leila Ben Ayed**, RT-OCR: Real-Time OCR Pipeline with Formal Timing Guarantees for Edge Vision Systems (HANA Lab, ENSI, Tunisia)

**PS1-4: Hanadi Elsablaoui, Mohamed Amine Mezghich, Jaouhar Fattahi, Ridha Ghayoula & Lassaad Latrach**, Graph-Based Multi-Face Deepfake Detection via CNN Feature Embeddings and Attention Networks (CRISTAL, GRIFT | HANA Lab, ENSI, Tunisia)

**PS1-5: Jamila Abidi & Chaima Kefi**, Divergent Wildfire Risk Mechanisms Under Climate Change: A Multi-Regional NeuralProphet-LiDAR Analysis of Mediterranean and Temperate Maritime Ecosystems (Manouba School of Engineering | Faculty of Sciences of Tunis, Tunisia)

**PS1-6: Mohamed Aymen Ben Khalifa, Mourad El Koundi & Imed Riadh Farah**, Modèles de diffusion pour la super-résolution en télédétection : cadre unifié et résultats expérimentaux (RIADI, ENSI, Univ. Manouba | École d'aviation de Borj el Amri | MSE, Tunisia)

**PS1-7: Achraf Antri, Dorsaf Sebai & Enjie Ghorbel**, Une approche par vision et apprentissage automatique pour la gestion intelligente des colis (CRISTAL, ENSI, Univ. Manouba, Tunisia)

**PS1-8: Salma Hasni, Mouna Selmi & Imed Riadh Farah**, Prédiction d'accidents urbains en Zero-Shot via des prototypes sémantiques basés sur les graphes de connaissance (RIADI Laboratory, Tunisia)

**PS1-9: Inès Hassoumi, Basmala Guesmi & Alia Belkaid**, Système de Recommandation Hybride pour la Génération de Circuits Touristiques Personnalisés (LARIA, ENSI, Univ. Manouba | ENAU, LARPAA, Tunisia)

Coffee break (10:30 a.m. - 11:00 a.m.)

Opening (11:00 a.m. - 11:45 a.m.)

TAIMA Entreprise (TE 1)  
Chairs : Dr. Enjie Ghorbel & Dr. Sinda Elghoul

11:45 a.m - 12:30 p.m

**TE1-1: Hamdi Belahssen**, AI-Powered Remote Physiological Monitoring Using RGB Cameras (Co-Founder & CEO of CAIRE, Germany)

**TE1-2: Adlan Kamoun** (Full Remote Factory)

**TE1-3: Imen Ayari** (Talan)

**TE1-4: Farouk Kamoun**, Vers une Infrastructure Numérique Durable pour la Recherche Afrique-Europe (DIGITAfrica)

Lunch (12:30 p.m.- 2:00 a.m.)

Oral Session OS1 : Geometry-aware Learning Stability  
Chair : Prof. Christine Fernandez-Maloigne

2:00 p.m. - 3:30 p.m.

**OS1-1: Imen Smati, Rania Khalsi, Mallek Mziou Sallami & Faouzi Ghorbel**, Multimodal DNN Certification for Image-Contour Representations under Projective Transformations (CRISTAL, ENSI, Univ. Manouba, Tunisia | Grand Valley State University, USA | CEA, France )

**OS1-2: Mahmoud Ghorbel**, Synthèse d'Identités Fictives par la technique du Morphing des visages pour la Préservation de la Confidentialité (Université Polytechnique Hauts-de-France, LAMIH UMR CNRS, Valenciennes, France )

**OS1-3: Chayma Chawechi, Molka Troudi, Enjie Ghorbel & Faouzi Ghorbel**, Évaluation de la reproductibilité des Classifieurs en Apprentissage Profond (CRISTAL, ENSI, Univ. Manouba | IHEC Carthage | SnT, Univ. Luxembourg)

**OS1-4: Zaineb Othmani, Majdi Jribi & Faouzi Ghorbel**, Graph Neural Networks on SE(3) Invariant Intrinsic Descriptors for 3D Facial Recognition (CRISTAL, ENSI, Univ. Manouba)

**OS1-5: Ayoub Sassi, Dorsaf Sebai & Wael Jaafar**, VideoQA avec mécanisme d'abstention : construction d'un benchmark et protocole d'évaluation post-hoc (CRISTAL, GRIFT, ENSI | ETS Montréal, Canada)

Welcome Cocktail

Oral Session OS2 : Invariant Description and Morphing for Deep Learning  
Chairs : Prof. Stéphane Derrode & Dr. Hermine Chatoux

9:00 a.m. - 10:30 a.m.

**OS2-1: Christine Fernandez-Maloigne, Valentin Fernandez & Landoline Bonnin,** Comparaison de neuf architectures CNN avec Deeplabcut pour l'analyse de la capacité préhensive d'un modèle murin (Université de Poitiers, France)

**OS2-2: Douha Jerbi, Emna Ghorbel & Faouzi Ghorbel,** Augmentation de données de visages 3D via le morphing tripolaire (CRISTAL Laboratory, GRIFT, ENSI, Université de La Manouba, Tunisia)

**OS2-3: Esya Saker, Sinda El Ghouli & Faouzi Ghorbel,** Un solveur en forme fermée rapide et stable pour l'estimation d'homographies planaires (CRISTAL Laboratory, GRIFT, ENSI, Université de La Manouba, Tunisia)

**OS2-4: Youssef Ait Khouya & Faouzi Ghorbel,** Nouvelles familles d'invariants stables et inversibles basées sur la transformée de Radon (CRISTAL, ENSI, Univ. Manouba | FST, UMI, GLSI Team, Morocco)

Coffee break (10:30 a.m. - 11:00 a.m.)

Special Session SS1 : Image Analysis From Measure to Certified Decision  
Chair : Dr. Soumoya Kouidi

11:00 a.m. - 12:30 a.m.

**SS1-1: Antony Madaleno, Hermine Chatoux, Noël Richard & Franck Marzani,** Distance à une référence : un moyen de réduire la dimension, application à la classification de textures hyperspectrales (ImViA, France)

**SS1-2: Injae Lee, Sungho Kang & Juneho Yi,** HVI-SMM, Spatially-Adaptive Correction for Low-Light Image Enhancement (Sungkyunkwan University, South Korea)

**SS1-3: Noël Richard, Rahma Jaber & Christine Fernandez-Maloigne,** First definitions of spectral fractals and the question of RGB displays (XLIM Laboratory, University of Poitiers, France)

**SS1-4: Amal Araoud, Enjie Ghorbel & Faouzi Ghorbel,** Réduction de Dimension sur la Variété SPD : Étude Comparative de Méthodes Linéaires et Non-Linéaires (CRISTAL Laboratory, GRIFT, ENSI, Université de La Manouba, Tunisia)

**SS1-5: Dalel Bey, Emna Ghorbel & Faouzi Ghorbel,** Shape Morphing for Data Augmentation : An Innovative Approach for Enhancing Insect Classification (CRISTAL Laboratory, GRIFT, ENSI, Tunisia)

Lunch (12:30 p.m.- 2:00 a.m.)

Special Session SS2 : AI for Climate Change : Data, Models and Applications  
Chair : Prof. Imed Riadh Farah

Gala Dinner

Thursday 21 May 2026

Poster Session 2 PS2 : Geometric Deep Learning  
Chair : Dr. Noël Richard & Dr. Dorra Dhoub

9:00 a.m. - 9:45 a.m.

**PS2-1: Omar Abidi, Mouna Selmi & Imed Riadh Farah**, SCOPE-GNN : Explication Causale Sémantique pour les Réseaux de Neurones sur Graphes via les LLMs (Université de Jendouba | RIADI, ENSI, Université de La Manouba, Tunisia)

**PS2-2: Chaima Athimni, Chaima Dhaouadi, Mohamed Amine Mezghich & Faouzi Ghorbel**, Complex-Moment Invariant Descriptors for Enhancing ResNet50-Based Breast Cancer Mammography Classification (CRISTAL Laboratory, GRIFT, ENSI, Université de La Manouba, Tunisia)

**PS2-3: Achraf Ghorbel & Faouzi Ghorbel**, Analyse de la stabilité des réseaux neuronaux profonds étroits sous contrainte de dimension imposée par ACP (Machine Learning, Tunisia)

**PS2-4: Chaima Dhaouadi, Dorsaf Hmida, Mohamed Amine Mezghich, Slim Mhiri & Faouzi Ghorbel**, Radon-AFMT Invariant Guided Conditional SE-UNet for MRI Tumor Segmentation (CRISTAL Laboratory, GRIFT, ENSI, Tunisia)

**PS2-5: Arwa Habbechi, Majdi Jribi & Faouzi Ghorbel**, Recalage ordonné de visages 3D en vue de reconnaissance (CRISTAL Laboratory, GRIFT, ENSI, Université de La Manouba, Tunisia)

**PS2-6: Abir Bousmina, Mouna Selmi & Imed Riadh Farah**, Explications contrefactuelles unifiées pour la prédiction de liens dans les graphes temporels (RIADI, ENSI, Université de La Manouba, Tunisia)

**PS2-7: Zayneb Bibani, Emna Ghorbel, Sinda El Ghouli & Faouzi Ghorbel**, A fast and robust hybrid affine-invariant shape registration with block-wise quadratic deformations under Partial Occlusion (CRISTAL Laboratory, GRIFT, ENSI, Université de La Manouba, Tunisia)

**PS2-8: Kamel Khelifi, Adel Kouki, Ramzi Khedher, Mohamed Amine Mezghich, Ridha Ghayoula & Lassaad Latrach**, GeoMRI-Flow : Synthèse IRM Multi-Modale par Flux Riemannien sur les Variétés SPD avec Attention Géométrique (HANA Lab, ENSI, Université de La Manouba, Tunisia)

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**PS2-9: Mohamed Aymen BEN KHALIFA**, Modèles de diffusion pour la super-résolution en télédétection : cadre unifié et résultats expérimentaux

Poster Session 3 PS3 : AI Health  
Chairs : Mc. Majdi Jribi & Dr. Mehdi Hojji

9:45 a.m. - 10:30 a.m.

**PS3-1: Salma Nbili, Akrem Sellami & Mohamed Farah**, Réseaux de Neurones sur Graphes basés sur l'EEG pour le Diagnostic de la Maladie d'Alzheimer et de Parkinson (ENSI, Université de La Manouba, Tunisia)

**PS3-2: Sirine Naifar, Rim Douss & Imed Riadh Farah**, Fusion multimodale spatio-temporelle explicable avec gestion formelle de l'incertitude : une approche méthodologique pour la détection du trouble du spectre de l'autisme (RIADI Laboratory, ENSI, Université de La Manouba, Tunisia)

**PS3-3: Firas Hfaiedh, Mohamed Mastouri, Rihab Lahmar, Rania Aouina, Rafaa Besbes, Amor Mosbah & Soumaya Kouidhi**, Virtual screening of microbiota metabolites to obtain molecules with anti-inflammatory and immunomodulatory effects (ISBST, Université de La Manouba | Faculty of Sciences of Tunis, Tunisia)

**PS3-4: Nader Belhadj, Mohamed Amine Mezghich, Ridha Ghayoula & Lassaad Latrach**, Graph-based framework with topological analysis of Retinal Vessel Networks for Diabetic Retinopathy (HANA Lab, ENSI, Université de La Manouba, Tunisia)

**PS3-5: Tesnim Dallagi, Soumaya Kouidhi & Amor Mosbah**, Design of Radio-labeled Peptides for a Specific CRC Diagnosis: The Case of the UNC5/Netrin-1 Receptor for Colorectal Cancer Imaging

**PS3-6: Tesnim Dallagi, Rihab Lahmar, Soulayma Hichri, Soumaya Kouidhi & Amor Mosbah**, MC1R-Targeted <sup>99m</sup>Tc-labeled Peptides: A Novel Radiopharmaceutical Approach for Melanoma Imaging

**PS3-7: Ghassen Hedhli, Sinda El Ghouli & Faouzi Ghorbel**, Cognitive and Multi-Level Adaptive Registration for Intelligent Docking: Beyond Data-Driven Alignment with Generative and Memory-Augmented Models

Coffee break (10:30 a.m. - 11:00 a.m.)

Special Session SS3 : Intelligent Medecine  
Chairs : Prof. Slim Mhiri & Dr. Zaineb Belkhiria

11:00 a.m. - 12:30 a.m.

**SS3-1: Rihab Lahmar, Tesnim Dallegi, Soumaya Kouidhi, Adel Nefzi & Amor Mosbah**, Advancing Cancer Detection and Imaging with <sup>99m</sup>Tc-Labeled Peptides Targeting TrKC Receptor: A Promising Nuclear Medicine Approach

**SS3-2: Rawa Rebhi, Feten Ben Abdallah, Adel Mediouni, Soumaya Kouidhi & Amor Mosbah**, Beyond Geometry: A Physicochemical and Differential Curvature Framework for Protein Binding Site Identification

**SS3-3: Majdi Jribi & Amen Allah Zoghlami**, Automatic Detection of Alzheimer's Disease Using a 3D Geometric Approach

**SS3-4: Safa Mansour, Dorra Dhouib, Majdi Jribi & Faouzi Ghorbel**, Two-Dimensional Morphometric Analysis of Brain MRI for Alzheimer's Disease Classification

**SS3-5: Malek Dinari, Chayma Chawechi, Enjie Ghorbel & Faouzi Ghorbel**, Étude de l'impact de la segmentation sur les méthodes d'estimation du signal rPPG et la fréquence cardiaque (CRISTAL Laboratory, ENSI, Université de La Manouba, Tunisia)

Lunch (12:30 p.m.- 2:00 a.m.)

Cultural Visit of the historical city of Carthage

End of the conference days TAIMA 2026