NICE, NOVEMBER 27-28 2023 – Théatre du Grand Château de Valrose

IAMAHA
NICE 2023

1st international conference on
**ARTIFICIAL INTELLIGENCE
AND APPLIED MATHEMATICS
FOR HISTORY AND ARCHAEOLOGY**

IAMAHA
NICE 2023

Organisé par :

Marco Corneli (Université Côte d'Azur)
Vanna Lisa Coli (Université Côte d'Azur)
Luca Calatroni (CNRS, Université Côte d'Azur)
Frédéric Precioso (Université Côte d'Azur)
Isabelle Théry (CNRS, Université Côte d'Azur)

CNRS INEE · CEPAM Cultures Environnements Préhistoire Antiquité Moyen Âge · SFdS · i3S sophia antipolis · UNIVERSITÉ CÔTE D'AZUR ACADÉMIE D'EXCELLENCE HOMME, IDÉES ET MILIEUX · FRANCE 2030 Initiative d'Excellence · UNIVERSITÉ CÔTE D'AZUR ÉCOLE UNIVERSITAIRE DE RECHERCHE SCIENCES DE LA SOCIÉTÉ ET DE L'ENVIRONNEMENT · UNIVERSITÉ CÔTE D'AZUR INTERDISCIPLINARY INSTITUTE FOR ARTIFICIAL INTELLIGENCE 3IA CÔTE D'AZUR

LUNDI 27 NOVEMBRE

8h30	Welcome - Registration
9h00	Welcome speech

Session 1 : AI-AM FOR HISTORY AND PHILOLOGY
Session chair : Catherine Faron (Université Côte d'Azur, INRIA, Laboratoire I3S, Sophia-Antipolis, France)

9h30	AI-AM for history and philology Keynote : Mathieu Aubry, École des Ponts ParisTech
10h30	*Coffee break*
10h45	Automatic Semantic Classification of Ancient Zoological Texts **Molka Tounsi Dhouib**, Université Côte d'Azur, CNRS, Laboratoire I3S, Sophia-Antipolis, France
11h05	Computer Vision and Historical Scientific Illustrations Fouad Aouinti, ISCD,SorbonneUniversité, Paris, France - **Zeynep Sonat Baltaci**, LIGM, Ecole des Ponts, Univ. Gustave Eiffel, CNRS, Marne-la-Vallée, France
11h25	Editing and Analysing Historical Astronomical Diagrams with Artificial Intelligence **Syrine Kalleli**, LIGM, Ecole des Ponts, Univ. Gustave Eiffel, CNRS, Marne-la-Vallée, France - **Scott Trigg**, SYRTE, Observatoire de Paris - PSL, CNRS, Paris, France
11h45	*Flash talks poster session, see page 12 (program)*
12h15	*Lunch*

Session 2 : AI-AM FOR ARTS AND ARCHAEOLOGY OF BUILDINGS
Session chair : Luca Calatroni (Université Côte d'Azur, CNRS, Laboratoire I3S, Sophia-Antipolis, France)

14h00	AI-AM for arts and archaeology of buildings Keynote : Aleksandra Pizurica, University of Ghent
15h00	*Coffee break*
15h15	Classification of ancient characters in mural paintings of the Alpine arc **Perrine Saillard**, Université Côte d'Azur, CNRS, Laboratoire CEPAM, Nice, France
15h35	Detecting rock origin of blocks using surface roughness and colour : the case study of the ancient theatre of Orange (France) **Sophie Viseur**, Aix Marseille Univ, CNRS, IRD, INRAE, CEREGE, Aix-en-Provence, France
15h55	µLIBS imaging and Artificial Neural Network for the characterization of heterogeneous materials: the case of lime mortars **Nicolas Herreyre**, Univ. Lyon 1, Institut Lumière Matière, CNRS, Villeurbanne, France ; Univ. Lyon 2, Archéologie et Archéométrie, CNRS, MOM, Lyon, France
16h15	*Coffee break*

Session 3 : AI-AM FOR MATERIALS OF THE PAST
Session chair : Juliette Leblond (Université Côte d'Azur, INRIA, Sophia-Antipolis, France)

16h30	Archaeological Classification of Small Dataset Using Meta- and Transfer methods of Machine Learning Approach: An example using Hittite Stele Fragments **Deniz Kayikci**, Universitat Autònoma Barcelona, Quantitative Archaeology Lab.
16h50	Astragalus bones identification via topological data analysis **Davide Adamo**, Université Côte d'Azur, CNRS, Laboratoire CEPAM, Nice, France
17h10	Deep learning versus geometric morphometrics for archaeobotany **Vincent Bonhomme**, Univ. Montpellier, ISEM, CNRS, EPHE, IRD, Montpellier, France ; Athéna, Lacamp, Roquedur, France – **Allowen Evin**, Univ. Montpellier, ISEM, CNRS, EPHE, IRD, Montpellier, France
17h30	From sherds to(wards) pots: advances on mathematical modelling of Neolithic pottery **Vanna Lisa Coli**, Université Côte d'Azur, CNRS, Laboratoire CEPAM, Nice, France
18h00	*Poster session*
19h30	*Aperitif*
20h15	*Dinner*

MARDI 28 NOVEMBRE

8h30	*Registration*

Session 3 : AI-AM FOR MATERIALS OF THE PAST
Session chair : Didier Binder (Université Côte d'Azur, CNRS, Laboratoire CEPAM, Nice, France)

9h00	AI-AM for materials of the past Keynote : Gabriele Gattiglia, University of Pisa
10h00	*Coffee break*
10h30	IA-SeReOs, an interdisciplinary project towards the automatic segmentation of CT-scanned ancient bone remains **Nicolas Vanderesse**, Univ. Bordeaux, PACEA, CNRS, Pessac, France
10h50	Machine Learning vs frequentist statistics chemical data processing for dolerite archaeological artefact raw material origins. **Bernabeu auban Joan**, Universitat de Valencia, Arqueologia i H. Antiga
11h10	Raman Spectroscopy of Flint and Artificial Intelligence: A Powerful Tool for Studying Fire Use by Hominins **Filipe Natalio**, Kimmel Center for Scientific Archaeology & Department of Plant and Environmental Sciences, Weizmann Institute of Science, Rehovot, Israel
11h30	Thin Details Meet Large-scale 3D-reconstruction: Photometric Stereo for Cultural Heritage **Jean Mélou**, IRIT, Toulouse, France – **Yvain Quéau**, Normandie Université, UNICAEN, ENSICAEN, GREYC, CNRS, Caen, France
11h50	Using statistical learning methods applied to stratigraphy and pottery to help establish periodisation in archaeology **Lise Bellanger**, Nantes Université, Laboratoire de Mathématiques Jean Leray, CNRS, Nantes, France - **Arthur Coulon**, Université de Tours, CITERES, CNRS, Tours, France
12h10	Archaeological Classification and Machine Learning. Statistics, Bayesian Statistics and neural networks **Juan Barcelo**, Universitat Autònoma Barcelona
12h30	*Lunch*

Session 4 : AI-AM FOR MODELLING OF SOCIO-ENVIRONMENTAL SYSTEMS
Session chair : Madalina Olteanu (Université Paris Dauphine-PSL, CEREMADE)

14h00	AI-AM for modelling of socio-environmental systems Keynote : Andreas Angourakis, Rühr Universitat Bochum
15h00	*Coffee break*
15h15	Archaeology and Climate Change: New Perspectives of Agent-Based Modelling coupled with LPJmL agroeco-systemic model for the Study of relationship between agricultural production and past societies **Nicolas Bernigaud**, Univ. Montpellier, ASM, Montpellier, France
15h35	Explore the impacts of socio-environmental interactions on Gallo-Roman settlement dynamics: an Agent-Based experiment **Frédérique Bertoncello**, Université Côte d'Azur, CNRS, Laboratoire CEPAM, Nice, France
15h55	Supervised and unsupervised classification of southern African wood and wood charcoals via their anatomical features **Marco Corneli** – **Elysandre Puech**, Université Côte d'Azur, CNRS, Laboratoire CEPAM, Nice, France
16h15	Learning and inferring on Cochlear Shapes of Juvenile and Adult Fossil Hominins **Chafik Samir**, Université Clermont Auvergne, LIMOS, CNRS, France
16h35	Mesolithic and Neolithic Niche Prediction Modelling with Bayesian Networks **Olga Palacios**, Universitat Autònoma Barcelona, Quantitative Archaeology Lab.
16h55	Possibilistic models reveal trends, statis and contingent trajectories for plant and animal domestications **Cedric Gaucherel**, Univ Montpellier, AMAP, CNRS, IRD, INRA, INRAE, CIRAD, Montpellier, France – **Allowen Evin**, Univ. Montpellier, ISEM, CNRS, EPHE, IRD, Montpellier, France
17h15	*Concluding remarks*