



Visual Pattern Extraction and Recognition  
for Cultural Heritage Understanding

## **1<sup>st</sup> International Virtual Conference on Visual Pattern Extraction and Recognition for Cultural Heritage Understanding (VIPERC 2022)**

a joint event of the 19<sup>th</sup> International Conference on Artificial Intelligence: Methodology, Systems, Applications (AIMSA), 12-13 September 2022.

### **Background:**

Cultural heritage is related to all the tangible and intangible aspects of historical, archaeological, architectural and artistic relevance. Each item of cultural heritage tells legends and traditions of people, families, communities and countries worldwide. Cultural heritage is a precious return to the society to find its origin and build the future from the past. It is a relevant part of everyday life, visible everywhere, from ruins of ancient places to modern natural scenes and art.

Tangible items of the cultural heritage include ancient buildings, archaeological sites, monuments, sculptures, paintings, coins, underwater ruins and cities, shipwrecks, manuscripts, photographs, films and other elements of artistic, archaeological, architectural and historical value. Intangible items can collect the acoustic heritage of ancient buildings, traditional crafts and festivals, oral traditions and expressions, dialects and sub-dialects, music, culinary traditions and ways of life.

The process of knowledge discovery and representation from the cultural heritage mainly consists of the extraction, recognition and modelling of visual patterns, which become of prior importance for the analysis and exploration of hidden features, new hypotheses, relationships, trends, and modes from the data of cultural heritage. A visual pattern refers to any characteristic which can be captured by the human senses.

Today partly, the extraction, recognition and modelling of visual patterns have been accomplished using simulation models, artificial intelligence, software computing, information retrieval and statistical analysis in multiple real-life contexts and scenarios.

### **Goals:**

The 1<sup>st</sup> International Virtual Conference on Visual Pattern Extraction and Recognition for Cultural Heritage Understanding aims to be a premier forum for presenting the state-of-the-art, new research, ongoing work, academic and project reports in advanced statistics and machine learning, 3D modelling and simulation, knowledge representation, intelligent systems, information retrieval and software engineering, for visual pattern extraction, analysis and recognition to preserve the cultural heritage.

VIPERC 2022 conference welcomes contributions from different research areas such as Image Processing, Artificial Intelligence, Software Engineering, Data Mining and Knowledge Discovery, Modelling and Simulation. It is also proposed as a stimulating environment for Industrial partners that want to exhibit, describe and promote innovation in products and services and to show their features from a scientific and technological sight, and their impact under an economical and society view in the field of cultural heritage.

**Topics of interest include, but are not limited to:**

Machine learning and data science for cultural heritage multimedia data  
Discrete geometry techniques for pattern recognition in cultural heritage images  
Combinatorial pattern matching and discovery in ancient images  
Graph-based methods for cultural heritage multimedia data  
Signal processing in the cultural heritage  
Intelligent systems for art restoration  
Augmented and virtual reality systems  
3D reconstruction and model processing  
3D modelling and simulation of cultural heritage items  
Classification or clustering of acoustic data from the cultural heritage  
Image processing, texture and shape analysis in historical data  
Computer vision for pattern extraction from cultural heritage images  
Remote sensing for cultural heritage preservation  
Data Mining for historical language recognition  
Image similarity and segmentation for the cultural heritage  
Deep learning applied to cultural heritage multimedia data  
Nature-inspired algorithms for historical multimedia data  
Natural Language Processing in the cultural heritage  
Knowledge representation and ontologies for ancient multimedia data  
Historical document processing and classification  
Speech, audio and music recognition and analysis from historical archives  
Archiving and searching methods for cultural heritage multimedia data  
Information retrieval in cultural heritage multimedia collections  
Discrimination and recognition of ancient languages and dialects  
Feature selection and extraction from cultural heritage multimedia data  
Ensemble methods for visual understanding of cultural heritage  
Industrial products, projects, prototypes and artefacts for cultural heritage preservation  
Explainable AI for the recognition of ancient multimedia data

**Organizing Committee**

**General Chairs:**

Alessia Amelio, InGeo, University "G. d'Annunzio" Chieti-Pescara  
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Anders Hast, Uppsala University, Sweden  
Radmila Janković Babić, Mathematical Institute of S.A.S.A., Serbia  
Katerina Kabassi, Ionian University, Greece  
Carlos Mello, Federal University of Pernambuco, Brazil

**Important Dates:**

Submission Deadline: May 31, 2022  
Acceptance Notification: Aug 20, 2022  
Camera-Ready and Registration Deadline: Sept 10, 2022  
Conference: Sept 12-13, 2022 (virtual mode)

**Submission Instructions:**

All submissions must be written in English following Springer LNCS author guidelines and have to be submitted as PDF files to EasyChair, with maximum paper length of 12 pages. All submissions will be reviewed by at least two independent reviewers. All the accepted papers will be published in the conference proceedings after being presented at the conference. The proceedings book will be submitted to be published by CEUR-WS, that is open access and indexed by SCOPUS and DBLP. Registration and attendance to the conference are mandatory for inclusion of the paper in the proceedings book.

**Submission Link:**

<https://easychair.org/conferences/?conf=viperc2022>