

Preface

Artificial Intelligence – New Pathways Towards Cultural Heritage

We know how to digitize our heritage, so what is the next step? Making our Cultural Heritage more accessible to the general public and fellow researchers, and even accessible when it is not there anymore.

In recent years, the application of Artificial Intelligence (AI) approaches has increased rapidly in cultural heritage (CH) management and research. A main driver is the availability of remote sensing data, allowing to detect new archaeological sites and to monitor the preservation of known monuments. Due to advances in computer power and a wide range of free machine learning tools, large amounts of remote sensing data can be processed automatically for CH purposes instead of covering only small areas by expert inspection.

But AI may also be applied for other tasks in cultural heritage research including automated classification of archaeological pottery or bones from excavations, classification of object images in cultural heritage collections, symbol and text recognition in ancient inscriptions, detecting relevant terms (often consisting of several words) in site report repositories with limited metadata, mining historical texts, expert systems in restoration, knowledge representation by ontologies, simulation of crowds in buildings (past and present: e.g. museums, prehistoric caves, palaces). Mixed reality apps using AI technology as well as Ambient Intelligence approaches support the creation of new pathways towards Cultural Heritage for the public. Cultural Heritage may also benefit from robotics with integrated AI applications, e.g. vehicles searching for sites in inaccessible areas such as unmanned submarines used for detecting archaeological remains in lakes and the sea.

“Is it possible to build a machine to do archaeology? Will this machine be capable of ‘interpreting’ and ‘explaining’ cultural heritage?” (Juan A. Barceló, [Computational Intelligence in Archaeology. State of the Art, CAA 2009](#))

This proceedings are the result of the 25th CHNT conference. This conference was about showcasing best-practice AI applications and the creation of the required data, but also about discussing the potential and limits of various AI approaches such as the amount of labelled data required. Furthermore, as this was the 25th anniversary of the conference, some personal reviews of the history of the conference and the topics discussed throughout the years have been included in the programme. We hope that the diverse papers and abstracts in this volume inspires the reader to further explore the potential of digital technology and AI in Cultural Heritage.

The Editors