

EDITORIAL SCIRES-IT. A VIRTUAL JOURNEY THROUGH CULTURAL AND ENVIRONMENTAL HERITAGE, TECHNOLOGIES, AND CREATIVE IMAGES

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Abstract

This issue of SCIRES-IT contains various and interesting contributions that take us on a virtual journey, in time and space, among cultural and environmental heritage, through research, technologies, creative images and innovative technological developments. The virtual journey ends with a surreal flight on the wings of a dragonfly in a protected Nature Reserve rich in biodiversity, to know and preserve.

Keywords

SCIRES-IT, Editorial, SCientific RESearch and Information Technology, Cultural and Environmental Heritage, Multimedia Technologies, Biodiversity, Nature in Dante, Eco-sustainable Publications, Diamond Open Access Journal

This issue of SCIRES-IT - SCientific RESearch and Information Technology (No. 1, vol. 13, 2023) contains various and interesting contributions that take us on a virtual journey, in time and space, among cultural and environmental heritage, through research, technologies, creative images and innovative technological developments.

The opening article, titled "Ribbed vaults with Renaissance characteristics: singular design and construction in some of Diego Siloé's vaults", by Eduardo Acosta, examines a particular construction technique used by the Renaissance master. The paper presents the results of 3D data acquisition and processing methodologies for the survey of ribbed vaults highlighting their historical-typological characteristics, representative of Spanish architecture in the mid-16th century, as well as the technique and thinking of Diego Siloé.

With a different slant from the previous one, the article "Architectural Intangible Heritage and Graphic Reconstruction. Terminological and Philological Notes" by Fabio Colonnese instead analyzes the concept of intangible architectural heritage by attempting to identify the historical and cultural roots of the practice of architectural reconstruction, with a focus on the work of Quatremère de Quincy, a French archaeologist and architectural theorist.

The article "Industrial metrological technologies for Cultural Heritage", by Cecilia Maria Roberta Luschi and Alessandra Vezzi,

address the issues related to the survey of small-scale artifacts made of reflective materials, starting with the specific case of a bronze horse preserved at the Isidoro Falchi Civic Archaeological Museum (MuVet) in Vetulonia.

The essay "Sculptural fragments from the church of San Gennaro extra moenia in Naples: digital twins for heritage knowledge, analysis and fruition", by Greta Attademo, also address the use of new technologies and advanced digital representation techniques for the preservation and enhancement of medieval sculptural heritage, in the specific case related to the apparatus of sculptural fragments currently preserved in the Palatine Chapel of the Castel Nuovo Museum in Naples.

Instead, Alfonso Ippolito, Martina Attenni and Rawan Darwa in their essay "HBIM as a tool for heritage presentation of Santa Maria in Trastevere" illustrate the use of a digital procedure for the documentation of historical architecture by focusing on a specific case study and confirming in this sense the ascertained potential of the BIM paradigm.

The essay "Cultural heritage recovery in rural Spain through digital means of surveying and graphic reconstruction. Case study of El Paular wool complex", by Nicolás Gutiérrez-Pérez, shows a research experience on the recovery of industrial archaeological heritage located in a rural area of Spain. Specifically, it analyzes the large wool

processing center built in 1624 by the Royal Monastery of El Paular in the small village of Trescasas (Segovia), which is today in a situation of deep degradation after being abandoned and looted following the French invasion (1808-1814).

With a shift that takes us from the architectural to the urban scale, the article "Virtual access to heritage through scientific drawing, semantic models and vr-experience of the Stronghold of Arquata del Tronto after the earthquake", by Fabrizio Banfi, Chiara Stanga and Angelo Giuseppe Landi, proposes a research method that uses a tool already tested in the field of Digital Cultural Heritage, the interactive representation. This tool is aimed, in the specific case of a study to which it is applied, at sharing complex scenarios, improving the reliability of the model and facilitating new forms of heritage dissemination.

Also Margherita Lasorella and Elena Cantatore, in their contribution "3DCityModels to support technical knowledge and management of historic built environments. A semantic CityGML-based model for the ancient core of Carovigno (BR), Italy" address a topic at the urban scale, proposing and discussing the application of CityGML standards for the collection, cataloging and management of semantic, geometric and geolocalized data applied to an entire historic center.

With a further shift of scale, the paper "Machine learning and landscape quality. Representing visual information using deep learning-based image segmentation from street view photos", by Fabio Bianconi, Marco Filippucci, Marco Seccaroni, Andrea Rolando and Domenico D'Uva, aims instead to define a methodological process and a digital criterion for automatically assessing the quality of a landscape from the analysis of Google Street View images processed by an artificial intelligence system.

Closing the essays involving applications, Davide Mezzino's article "Digital visualization for cultural dissemination" instead proposes a reflection on possible approaches to presenting archaeological sites and museum collections. Creative uses of virtual reality (VR) and multimedia technologies and related opportunities for communication and interpretation are here presented through two case studies in archaeology, the UNESCO heritage site of Bagan and the Egyptian Museum in Turin.

Gonzalo Alfonso Beltrán Alvarado's contribution, "Augmented Reality (AR) in

Education, Medicine and Industry: a systematic review of the literature," proposes a review of the main applications of Augmented Reality in different fields ranging from Education to Medicine, from Industry to Cultural Heritage.

The article "Similarity based Optimization to Fractal Image Encoding based on multithreading parallelization", by Ranjita Asati, Mukesh Raghuvanshi and Kavita Singh, proposes an integrated approach combining both multithreaded parallelism and similarity based encoding space reduction to diminish the time of compression in Fractal image coding. The compression time of the proposed integrated method is tested for images of different resolution and the proposed solution is able to reduce the compression time by almost 4.4 times compared to existing fractal image compression techniques.

The virtual journey addressed within this new issue of SCIRES-IT finally concludes with a surreal flight, on the wings of Alice Palmieri's dragonfly, in the Nature Reserve "Cratere degli Astroni," a protected area located within one of the craters of the Phlegraean Fields, located in the municipalities of Pozzuoli and Naples, in the metropolitan city of Naples (Italy).

Indeed, the article "Midjourney experimentation: representing Nature on a macro scale" by Alice Palmieri offers insights into the use of artificial images generated through machine learning, investigating the advantages and criticalities of these tools. The proposed experimentation is aimed at testing a new form of communication to stimulate reflections on the Human-Nature relationship and increase ecological awareness, exploiting the ability to raise awareness through surreal representation.

The article addresses a very topical issue, and the objectives of the project are appreciable.

Nature, in fact, in all its forms and manifestations, the environment seen as biodiversity and ecosystems to preserve, not only to exploit, are among the main objectives of our SCIRES-IT Journal, since it was founded. (SCIRES-IT Manifesto, 2011).

The tools used for communication are very important, and AI (Artificial Intelligence) can be of great help, but it is not automatic that they will lead to the stated aim. The limits of these tools reside in the way they will be used.

As Ferdinando Boero (eminent Professor of Zoology and Marine Biology, internationally renowned scientist and ecologist, and member of

the Editorial Board of SCIRES-IT) states, in spite of the obvious relevance of the ocean, it is still necessary to promote awareness about its importance. “The biodiversity that is usually shown, and protected, does not contribute much to the functioning of ecosystems, and the processes that sustain it remain in the shade. ... The usual communication strategy is to elicit, with beautiful images of iconic species and habitats, a reaction of wonder from the public which does not lead to a reaction of understanding, to the full perception of the role of ocean sciences for our well-being. ... Sustainability is currently perceived as a necessary goal for all governments, but the way it is depicted substantiates the perception that social and economic sciences overwhelm ecological ones.” (Boero, 2021).

We take this opportunity to remind you that SCIRES-IT - SCientific REsearch and Information Technology publishes original works, focused on Digitalization and Multimedia Technologies and Information & Communication Technology (ICT) in support of Cultural and Environmental Heritage (CH) documentation, preservation and fruition. It is a “Class A” Diamond Open Access Journal and eco-sustainable which combines the main principles of the Berlin Declaration on Open Access and the aims of the International Convention on Biological Diversity (Proietti & Valzano, 2011, 2014; Boero & Lucarella, 2018; Valzano & Cigola, 2020; Gallo & Accogli, 2022).

In line with the editorial project “Eco-sustainable OA publications”, for each issue of SCIRES-IT, an action of environmental restoration has been carried out in protected areas by planting local ecotypes of native species, in cooperation with CEIT (Euro-Mediterranean Centre for Innovation Technology for the Cultural and Environmental Heritage and Biomedicine)¹ and the Botanical Garden of the University of Salento².

Over the years, in cooperation with CEIT, the Laboratory of Zoology and Marine Biology³, and the Department of Mathematics and Physics of the University of Salento, other initiatives and workshops have been organized aimed at the knowledge, enhancement, management and preservation of natural and environmental

resources, as well as the development of study programmes aimed at carrying out interventions of restoration of the natural environment, thus enabling policies of improvement and cultural, economic and eco-sustainable development of the areas involved. (Boero & Lucarella, 2018).

In full accordance with its policy, SCIRES-IT published a Supplement containing the results of CoCoNet, the projects of the EU Oceans of Tomorrow programme, which tackled two interconnected problems, namely, the protection of the marine environment and the production of clean energy. (Boero, Valzano & Bartolomei, 2016). The CoCoNet Consortium involved hundreds of scientists from 22 states, based in Africa, Asia, and Europe, contributing to build a coherent scientific community. (Boero, Fogliani, Frascchetti, Goriup, Macpherson, Planes, Soukissian, & CoCoNet Consortium, 2016).

SCIRES-IT published articles on new technologies for monitoring and managing historic gardens and green spaces in general, and on support systems for high-quality urban green space management (Romani, Rapi, Cacini, Massa, Mati, Rocchi, Sabatini, & Battista, 2020).

In 2021 and 2022, SCIRES-IT also hosted some contributions on the multimedia projects carried out for seventh centenary of Dante Alighieri's death (Valzano & Gallo, 2021; Maggiore, 2022). In such a context, Dante played a role as a poet, but also a man of the Middle Ages interested to the functioning of machines and technological processes contemporary to him (Caroti, Piemonte, Capriuoli, Cisaria, 2021) and, especially, a naturalist and ecologist ante litteram (Valzano & Sartor, 2021; Valzano, Sartor, Romani, & Accogli, 2022).

In particular, in the open access multimedia project “Dante as an ecologist and poet in the world. ‘Divine illustrations’ by Gustave Doré”, emerges Dante's interest and respect for the environment, for the Nature in all its forms and manifestations, that he observes with great wonder and curiosity, with the eyes of a researcher, a naturalist. His attention is focused also on the sustainability of human intervention and on the consequences it has on a number of

¹ CEIT. Centro Euromediterraneo di Innovazione Tecnologica per i Beni Culturali e Ambientali e la Biomedicina (Euro-Mediterranean Centre for Innovation Technology for the Cultural and Environmental Heritage and Biomedicine), directed by Virginia Valzano (see: <http://www.ceit-otranto.it/>).

² Orto Botanico (Botanical Garden) of the University of Salento. Technical manager: Rita Accogli.

³ Laboratory for Zoology and Marine Biology of the University of Salento, directed by Ferdinando Boero.

natural habitats, on biodiversity and, therefore, on ecosystems. This project has been nominated for the World Summit Award 2021, in the category Culture & Tourism, as the most innovative digital solution from Italy.

SCIRES-IT has maintained its fundamental objectives and its policy, thus achieving excellent results in both national and international scientific fields, thanks to the work and commitment of the Editorial Team, Reviewers, and Authors, to whom goes our sincere gratitude.

Starting with this first issue of Vol. 13, 2023, SCIRES-IT has expanded its International Editorial Team with a Journal Manager, whose role has been assumed by Ilaria Trizio, and with some Directors

from different academic Institutions, Professors and experts from several disciplinary fields, relevant to the journal's themes.

Among them is the eminent Professor Salvatore Settis, archaeologist and art historian, as well as one of the most authoritative voices on the Italian intellectual scene, always in the forefront of promoting culture and research, and campaigning for the protection of cultural and historical-artistic heritage, landscape and environment.

To all of them goes our sincere gratitude, with the hope that these new collaborations will lead SCIRES-IT towards greater and more significant accomplishments.

REFERENCES

- Boero, F., Mission possible: Holistic approaches can heal marine wounds. (2021). *Advances in Marine Biology*, 88, 19-38. <https://doi.org/10.1016/B978-0-12-824615-3.09987-X>
- Boero, F., Foglini, F., Frascchetti, S., Goriup, P., Macpherson, E., Planes, S., Soukissian, T., & The CoCoNet Consortium (2016). CoCoNet: towards coast to coast networks of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential. *SCIRES-IT - SCientific RESearch and Information Technology*, 6 (Suppl.), 1-95. <http://www.sciresit.it/article/download/12592/11435>.
- Boero, F., & Lucarella, F. A. (2018). Editorial. Making the point on SCIRES-IT in 2018. *SCIRES-IT - SCientific RESearch and Information Technology*, 8(1), I-IV. <http://dx.doi.org/10.2423/i22394303v8n1pl>
- Boero, F., Valzano, V., & Bartolomei, C. (2016) Editorial. A supplement of Scires-it on the COCONET european project. *SCIRES-IT - SCientific RESearch and Information Technology*, 6(Supplement), I-II. <http://dx.doi.org/10.2423/i22394303v6Spl>
- Caroti, G., Piemonte, A., Capriuoli, F., & Cisaria, M. (2021). Project "Divina!" for Dante's 700th death anniversary. *SCIRES-IT - SCientific RESearch and Information Technology*, 11(2), 57-66. <http://dx.doi.org/10.2423/i22394303v11n2p57>
- Gallo, G., & Accogli, R. (2022). Editorial. SCIRES-IT, a "Class A" Diamond Open Access Journal. *SCIRES-IT - SCientific RESearch and Information Technology*, 12(1), I-III. <http://dx.doi.org/10.2423/i22394303v12n2pl>
- Maggiore, M. R (2022). Editorial SCIRES-IT. New technologies for integrated and sustainable enhancement and enjoyment of cultural, environmental and natural heritage. *SCIRES-IT - SCientific RESearch and Information Technology*, 12(1), I-III. <http://dx.doi.org/10.2423/i22394303v12n1pl>
- Proietti, F., & Valzano, V. (2011). Editorial. *SCIRES-IT - SCientific RESearch and Information Technology*, 1(1), 1-2. <http://dx.doi.org/10.2423/i22394303v1n1p1>
- SCIRES-IT Manifesto 2011 (2011). *SCIRES-IT - SCientific RESearch and Information Technology*. Retrived from <http://www.sciresit.it/about/editorialPolicies#custom-2>
- Romani, M., Rapi, B., Cacini, S., Massa, D., Mati, F., Rocchi, L. Sabatini, F., & Battista, P. (2020) A support system for hight-quality urban green management in Tuscany. *SCientific RESearch and Information Technology*, 10(2), 37-52. <http://dx.doi.org/10.2423/i22394303v10n2p37>
- Valzano, V. (2014). Editorial. SCIRES-IT, an Eco-sustainable Open-Access Journal. *SCIRES-IT - SCientific RESearch and Information Technology*, 4(1), 1-4. <http://dx.doi.org/10.2423/i22394303v4n1p1>
- Valzano, V., & Cigola, M. (2020). Editorial. Opening of the 10th year of SCIRES-IT. *SCIRES-IT - SCientific RESearch and Information Technology*, 10(1), I-V. <http://dx.doi.org/10.2423/i22394303v10n1pl>
- Valano, V., & Gallo, G. (2021). SCIRES-IT. *SCIRES-IT - SCientific RESearch and Information Technology*, 11(2), I-III. <http://dx.doi.org/10.2423/i22394303v11n2pl>
- Valzano, V., & Sartor, G. (2021). Dante as an ecologist and poet in the world. "Divine illustrations" by Gustave Doré. An open access multimedia project. *SCIRES-IT - SCientific RESearch and Information Technology*, 11(2), 41-56. <http://dx.doi.org/10.2423/i22394303v11n2p41>
- Valzano, V., & Sartor, G, Romani, M., & Accogli, R. (2022). Dante's journey in the Botanical Garden. *SCIRES-IT - SCientific RESearch and Information Technology*, 12(1), 67-76. <http://dx.doi.org/10.2423/i22394303v12n1p95>