Editorial

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This special issue of the CITAR Journal is comprised of new, extended versions of articles that were presented at xCoAx 2014, the 2nd International Conference on Computation, Communication, Aesthetics and X, which took place in June in Porto, Portugal.

To call xCoAx a conference is surely limiting: the event enhances the exchange of ideas provided by traditional talks and Q&A sessions with displays of artworks and prototypes in an exhibition where the audience can interact with authors, an evening of exciting performances ranging from musical acts with analog and digital instruments and visuals to machine-enhanced dance numbers, and an Algorave, an array of talented live-coders and DJs that turn algorithms into a dance party.

The hybrid nature of this event is meant to reflect the multi-faceted if not apparently contradictory nature of the topic which is being tackled also in this issue: how computation supports, changes, interacts with how we communicate, how we create and appreciate aesthetic experiences.

Communication and Art are fundamental dimensions of our existence as human beings and they indeed rely on characteristics and features that are typically human, like creativity, imagination, perception, memory and so on. The list could go on, but it is immediately clear that these concepts all revolve around what sets us apart from the environment that surrounds us.

The borders separating human wit from the outside world have become less and less clear with the evolution of the artefacts we commonly call computers. Again, a choice of words with too limited a scope: nowadays we are surrounded by tools that perform calculations like traditional computers, but can exist in a huge variety of shapes and sizes. Smartphones, wireless sensors, haptic interfaces, flexible displays, etc., all provide ways for human beings to enhance their relation with the surrounding environment, whether it is visual imagery, soundscapes, or other people.

Obviously, tools to interact with the world are as old as humankind, but instruments that are based on the algorithmic rules of discrete mathematics are indeed much newer, and date back only to the 20th century, when Computer Science was born.

Here lies the conundrum, the *X* of xCoAx: What do humans lose or gain when they rely on computers and computational devices? Does an algorithmic approach enhance or hinder human creativity? Are all rules of communication and aesthetics algorithmic?

We do not claim at all that this issue exhaustively covers the territories these questions are pointing at, but the features articles surely provide very interesting insights from different yet connected points of view.

Bradbury invites us to observe and reflect upon the relation between artists and audiences in the context of new media artworks from the rather unique

perspective of ventriloquism. Two of the author's artworks are used as case studies for this analysis.

If puppets can be seen as a special instrument for communication, Schraffenberger and van der Heide put the focus on a newer kind of instruments to interact with the environment, namely, Augmented Reality (AR). There is still little consensus on the conceptual foundations of AR, and the authors aim at tackling this issue in their work.

Among the several instruments made available by technology, coons focuses on those aimed at measurement, and proposes an analysis of what happens when they are used on our bodies in the context of Anthropometry. The study stems from two projects, a 3D scanner and an interactive wearable sculpture, to explore the ramifications of body measurement with new technological devices.

Ribas takes a step back to look at computational artefacts from a more general perspective: the aim is not only to consider their specific digital nature, but to include also the aesthetic objectives that guide the creative processes leading to those artefacts and the aesthetics experiences that they grant once created.

Another work focusing on the process is Adkins's: the author contributes to the discourse with his personal experience as a music composer and illustrates the role of Nodalism, including network of ideas and neural models of cognitive behaviour, in the creation of contemporary electronic music.

Creativity is also the topic of the work by Eigenfeldt et al., but with a more machine-centric focus: their paper presents a media work relying on Metacreativity, with the aim of endowing machines with creative behaviour. The challenge is to capture in terms of algorithms what typically guides humans in their creative processes and to program a computational system accordingly.

Unconventional use of machines is also tackled by Wanner, who presents a series of works created by hacking domestic devices as drawing machines. These works are analysed in search for unforeseen, emergent patterns in conjunction with irregularities of the specific mechanical instruments involved, under the more general scope of Glitch Art.

Perception of patterns plays a central role in the work by Sa et al., which focuses on audio-visual mappings and the detection of relevant cause-effect relationships. This paper reports a study that borrows methods from experimental psychology to investigate on the production of a sense of causation in the audience and also on how to confound the cause-effect pairs actually involved in an audiovisual work.

Finally, Gomes et al. bring the discourse back to the artists' side by presenting a survey on the use of an instrument to collect and store raw data from the analysis of urban soundscapes. The experiences of several artists are compared to identify systematic approaches in the algorithmic reinterpretation of raw sonic data.

All these endeavours share at least one common aim: Whether it is sounds or visuals or, more in general, creativity and the relevant tools, our authors are looking for a way to make some sense of the fertile turmoil of art and communication. Computation and its devices seem to provide a very effective way to systematise concepts and operations, by arranging them within the orderly compartments of algorithmic rules. Let the reader be warned: whether successful or not, such attempt is not to hinder the creative force of the human mind, but to enhance it and to bring it to new, exciting realms. The journey begins.