ICT & Art Connect: The Future of Art and Computing: Though Intuition, Ingenuity and Open Consultation

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Abstract. This paper describes "Intuition and Ingenuity" the touring exhibition which brought together a number of important artists from digital art pioneers to emerging contemporaries to investigate Alan Turing's enduring influence on art and contemporary culture. It then goes on to discuss contemporary issues in bringing together art and computing in the EU funded ICT & Art Connect project, such as the role of art as a means for widening public engagement in ICT issues such as ethical debates around privacy, open data or opaque technologies.

The current political interest in bringing together of art and technology takes place under the assumption that it leads to better art and better technology that is, above all, more human centred. For the EU this holds economic promise, as human centred technologies have increased market potential and in the case of the arts, in the current austere times, they are now being asked to look beyond traditional forms public funding and make a case for their 'value' in society.

A future vision of ICT & Art Connect is for artists to be embedded long-term in major cutting edge research projects such as EU Horizon 2020 initiatives, either in academic or commercial environments to create transdisciplinary methods of working and outputs. This needs political support at a European level and structures to ensure the ongoing co-ordination of such activities such as mentoring by experienced artists and curators. Artists need to be given time to become fully embedded in the science, the language and the debates of the technological fields they are responding too and this is a long process, and difficult to quantify and justify in the short term, but can produce untold benefits in the long term.

1 INTRODUCTION

The mathematician and pioneer of modern computing Alan Matheson Turing described, in his PhD Thesis "A System of Logic Based on Ordinals," his methodology for mathematical reasoning as "intuition and ingenuity". This statement has a huge resonance with ways in which artists describe their practice. The work of Turing, and in particular his formalisation of the algorithm, his work on morphogenesis (the biological processes that cause organisms to grow in a particular shapes) and the now famous "Turing Test" for machine intelligence have captured the imagination of artists for decades, whilst his technological developments have given them the tools to create new kinds of artworks. Similarly his personal struggles and alleged suicide resonate emotionally. [1]

Artists working directly with computer technology, in some form, have demonstrated particular ingenuity in creating and gaining access to the tools and knowledge they need in order to intervene in that world and commenting on and critiquing what they find there. Recently in 2013 the European Union funded a project entitled ICT and Art Connect that aims to further bring together the worlds of computing and technology with art for cross collaboration and to engage the citizens of Europe in dialogues around the emerging technologies that are currently in development. This is something that has been happening in some form or other for many years, but this political will to see it happen is something relatively new. This paper aims to discuss the forces at play and outline some issues we need to consider.

Figure 1. "Portrait of Alan Turing" by Alex May and Martin A Smith, commissioned for "Intuition and Ingenuity" Alan Turing Centenary Exhibition

2 INTUITION AND INGENUITY

For the Centenary of the birth of Alan Turing in 2012 an international campaign to widen public knowledge of Turing's work was developed, headed by Professor S Barry Cooper. A curatorial team of Anna Dumitriu (Artist), Nick Lambert (Computer Art Historian and Chair the Computer Arts Society) and Sue Gollifer (Artist and Director of the International Symposium of Electronic Arts HQ) collaborated to create a touring exhibition which brought together a number of important artists from digital art pioneers to emerging contemporaries to investigate Turing's enduring influence on art and contemporary culture. Internationally renowned artists who described Turing as an important influence on the work and ideas where invited to exhibit, and in some cases new work was commissioned.

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"Intuition and Ingenuity", funded by Arts Council England, launched at Lighthouse in Brighton and travelled to major galleries and festivals in the UK. It was exhibited as part of the AISB/IACAP World Congress in Birmingham in 2012, the Lovebytes Festival in Sheffield, blinc festival in Wales and Robert Gordon University in Scotland, as well as many other places. It concluded in late 2013 at its spiritual home of Bletchley Park. The work in the show included early algorithmic artworks by Roman Verostko, generative and evolutionary works by Paul Brown, William Latham and boredomresearch, robotic works by Patrick Tresset, and Alex May and Anna Dumitriu, systems art works by Sue Gollifer, sonic work by Martin A Smith and interactive work by Ernest Edmonds.

3 DIGITAL PIONEERS

So in many ways the exhibition clearly reflected the history of digital art and the various ways that artists have intervened within computer science settings from the start, teaching themselves to code, using tenacity to gain access to the few early computers that were housed either in academic or research institutes, such William Latham's artist in residence position at IBM in the 1980s, where he developed his FormSynth system that allowed him to turn his rule based drawings into fantastical evolving digital lifeforms that digitally mutate before your eyes. Latham recently created a new body of work reprising his long running collaboration with computer scientist Stephen Todd, launched at the Phoenix Gallery for Brighton Digital Festival in 2013. The show followed a gap in Latham's art practice where he found himself embedded in the computer gaming world. The influence of that time in his life is apparent in the powerful new work, which allows playful audience participation.

Pioneers like Paul Brown and Ernest Edmonds went as far as embedding themselves fully within the world of computing. Paul Brown has a long running role as an artist in residence and visiting professor in the Centre for Computational Neuroscience and Robotics (CCNR), the cutting edge artificial life research group at the University of Sussex where he developed his "DrawBot" project to investigate notions of computational creativity and ask if an autonomous robot could be creative is its own right.

Ernest Edmonds, who exhibited his first digital interactive art, in collaboration with Stroud Cornock, as far back as 1970, actually became Head of the Computer Studies Department at Loughborough University and then rose to the rank of Dean of faculty, whilst continuing his arts practice. Nowadays, like many of his fellow pioneers he transcends disciplinary boundaries between art and computing, which was powerfully demonstrated through his recent retrospective at the Site Gallery in Sheffield in 2012. [2]

4 WOMEN AND COMPUTING

For artists, interested in computing in its early days, it was very difficult to gain access to the highly technical world of computing, but for women artists in was even harder, working in the early days of computer art it was difficult easy to gain access to that male dominated world. Artist Sue Gollifer's solution was "I turned myself into a computer". She created sets of rules to systematically create highly complex print based works, using unusual media such as reflective surfaces and plastics, so they appear to change and evolve as you move around them. Gollifer now directs the international HQ of ISEA (the International Symposium of Electronic Art) and continues to develop her own art practice within the field. Nowadays it is easier for women to enter the field, thanks in part to artists like Gollifer, and Luciana Haill is currently visiting research fellow: artist in residence in the CCNR (since 2012) and Anna Dumitriu, who held the post previously (since 2005), now holds a similar post in the Department of Computer Science at The University of Hertfordshire.

5 ICT & ART CONNECT

The European Union (EU) FP7 FET funded ICT & Art Connect project aims to investigate what the benefits and issues of collaboration between art and ICT, and consider new directions for future collaborations or ways of working. The project focusses on what the EU terms as 'co-creation' and 'citizen engagement in ICT'. These terms can be understood as meaning an artist or team of artists working with a scientist/technologist or team of scientist/technologists for the purposes of creating a new tool, artwork or piece of technology, with resonance in either field or beyond, and/or creating an object which engages the wider public in issues connected with ICT such as ethical debates around privacy, open data or opaque technologies.

The ICT and Art Connect project started in June 2013 and has so far reached out to artists across Europe and beyond. The project has hosted a number of large-scale international events in London, Brussels, Amsterdam, Edinburgh and Barcelona.

These events have taken the form of participatory workshops mentored to facilitate future collaborations, networking opportunities, and consultations. Issues so far raised in consultation sessions include funding, different ways of working, different forms of language being used between disciplines, the fetishization of the latest technology, lack of respect for art in ICT settings, the instrumentalisation of art, and the short length of time of many residences.

6 PUBLIC ENGAGEMENT IN COMPUTING THROUGH ART

Many people believe that art is able to communicate important issues in science and technology to a wide range of audiences that are not otherwise reached by traditional science communication techniques. There are obviously concerns about the instrumentalisation of art to create propaganda for science but enabling artists to work with cutting edge technologies in contexts that enable audiences to participate in debates around emerging technologies and ethical problems that they would not otherwise have access to, is clearly a benefit to society.

7 THE ECONOMIES OF ART AND TECHNOLOGY COLLABORATION

The current political interest in bringing together of art and technology also takes place under the assumption that it leads to better art and better technology that is, above all, more human centred. For the EU this holds economic promise, as human

centred technologies have increased market potential and in the case of the arts, in the current austere times, they are now being asked to look beyond traditional forms public funding and make a case for their 'value' in society. [3]

The ICT and Art Connect project attempts to critically interrogate these issues and assumptions, and look at ways in which artists and technologists can develop successful collaborations that are viable and sustainable, for example in the "My Robot Companion" project which has been developed by Anna Dumitriu and Alex May over the past three years in collaboration with Professor Kerstin Dautenhan and Dr Michael L Waters from the Adaptive Systems Research Group at The University of Hertfordshire. This project combines robotics, code art and performance techniques to investigate the social ethical implications of robots as potential companions for humans and was exhibited as part of "Intuition and Ingenuity". [4]

Figure 2. "My Robot Companion" by Anna Dumitriu and Alex May in collaboration with Professor Kerstin Dautenhan and Dr Michael L Waters, University of Hertfordshire

8 A VISION FOR THE FUTURE

A future vision of ICT & Art Connect is for artists to be embedded long-term in major cutting edge research projects such as EU Horizon 2020 initiatives, either in academic or commercial environments to create transdisciplinary methods of working and outputs. This needs political support at a European level and structures to ensure the ongoing co-ordination of such activities such as mentoring by experienced artists and curators.

Artists need to be given time to become fully embedded in the science, the language and the debates of the technological fields they are responding too and this is a long process, and difficult to quantify and justify in the short term, but can produce untold benefits in the long term.

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