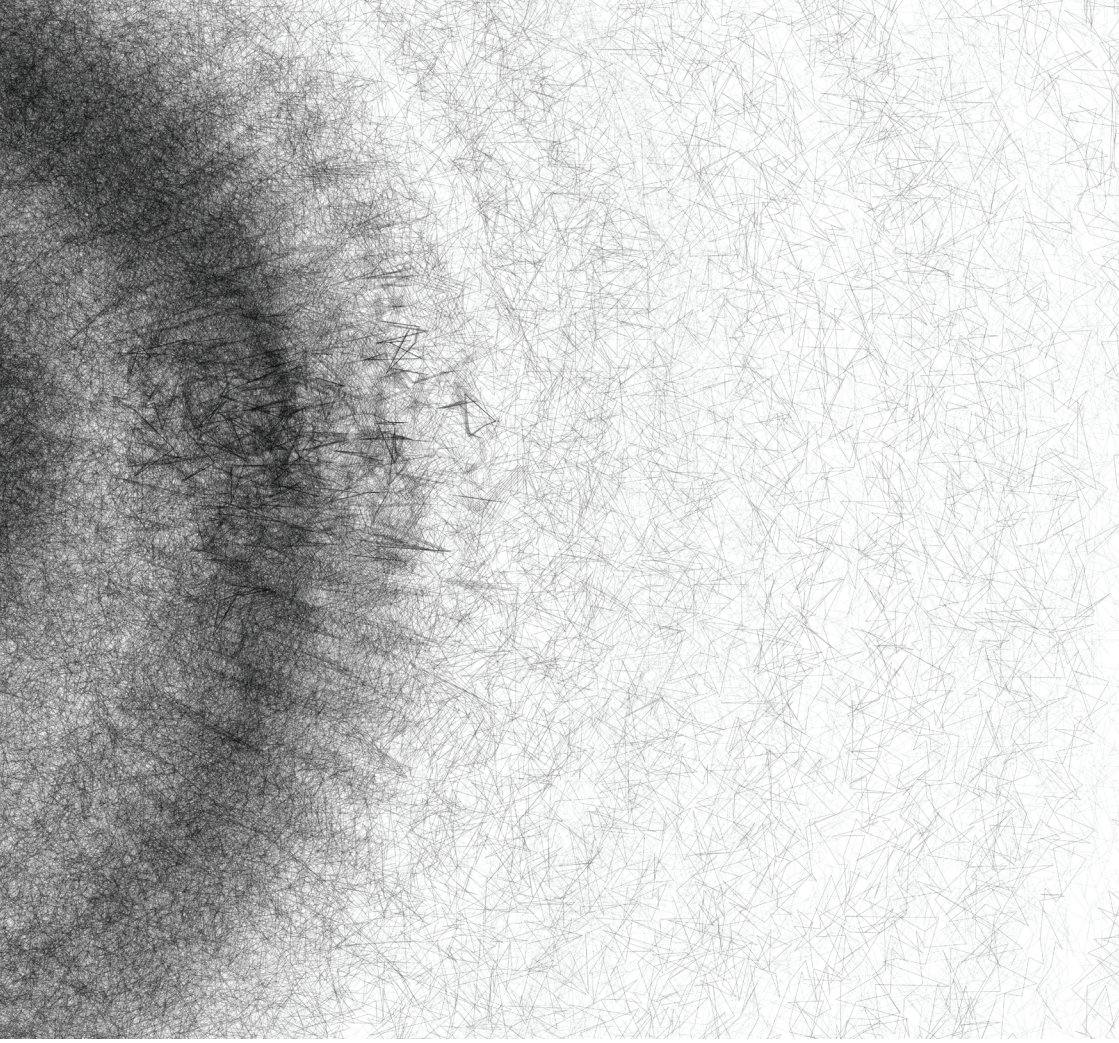
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Digital Art in Ireland

Reflections & Visuals

edited by
James O'Sullivan
Aoibhie McCarthy

Sample-Studios

Digital Art in Ireland

Reflections & Visuals

A Sample-Studios Project

Edited by
James O'Sullivan &
Aoibhie McCarthy

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Contents

The Unimagined Future
Gemma Tipton 1

Nadia J. Armstrong 5

Fiona McDonald 11

Digital Art: An Incomplete Story
Conor McGarrigle 15

Archiving Ireland's Digital Art
Catherine Bourne 26

Trevor Furlong 30

Andrew McSweeney 33

Elaine Hoey 37

Joseph Feller 43

Cailean Finn 45

Digital Art & Social Inclusion
Mary Galvin 51

Mícheál Ó Catháin 53

Cliona Harmey 61

berte & harmey 65

Mark Cullen 69

What Digital Angst Reveals
Robin Parmar 73

Sarah Jayne Booth 83

Martina Cleary 87

Digital Art, Ireland, the Future
Micheál O'Connell 91

THE UNIMAGINED FUTURE

GEMMA TIPTON

On a cold March afternoon in 2006, the halls of New York's Armory building were alight with something new. The Pulse Art Fair, experimental off-shoot of the venerable Armory Show, had always been the more interesting place to go to see cutting edge art, but in 2006 digital art had truly arrived. It appeared in many of the booths, occupying the minds, as well as emptying the pockets of avid collectors.

My recollection of the Fair's wares was of the repetitive dullness of those artists who were evidently simply excited by fractals. This was art of the "look what we can make the technology do!" variety. The best art, whatever the medium, harnesses all or any available technologies, be they pigments or pixels, in service of an emotion or idea.

There was one artist who stood out, however: John Gerrard's Smoke Trees were the talk of the fair. The Tipperary-born artist has since gone on to a huge international career but, at the time, the Smoke Trees were some of the first digital artworks I had seen that didn't take the medium as the subject. Instead, Gerrard used the developing technology to make haunting works that were new and different, and yet which were still, as all good art is, essentially timeless.

In the Smoke Tree series, you see a tree on a screen. It seems shrouded in smoke, as it is depicted emitting carbon dioxide rather

GEMMA TIPTON is a writer on arts and culture. Based in Ireland she writes for *The Irish Times* and other Irish and international publications.

than oxygen. In the background, the light changes from day to night on a twenty-four hour cycle, and the seasons change with the passing months. Poignantly, the tree is also slowly dying, on its own natural schedule. Purchase an Oak Smoke Tree today, and three hundred years from now, should the world still exist, your descendants should be there to see it fall.

Gerrard uses real-time three dimensional computer simulations. You're not seeing a film, or an animation of a tree, instead the computer program is generating the image as you watch. More recent works by Gerrard have explored intensive farming, climate change and surveillance capitalism, all using developments of this pioneering technology.

This is just one aspect of what digital art is, and what it can mean for artists and for the arts. Digital art first emerged in the 1980s, as computer graphics allowed artists and designers to begin to explore. It leapt forward in the 1990s, when video could be downloaded to a computer. As personal computers became ubiquitous, the full-scale age of image manipulation began. Since then, the growth of digital art has been exponential, and Ireland has been at the forefront.

There have, naturally, been hiccups and false starts. ArtHouse in Temple Bar is a good example of how quickly the digital revolution has altered how we think about art. When the Temple Bar area of Dublin was being redeveloped as a cultural quarter, the ArtHouse building was originally conceived as a multimedia centre. However, back then, "multimedia" meant combining mediums: sculpture made from different materials, performance with a backdrop of film.

By the time ArtHouse opened in 1995, it had come to mean one thing only: computer aided art. Digital art-making never quite fit into a building originally designed for large-scale physical works, and ArtHouse has had various occupiers ever since. Later in 2000, Media Lab Europe, based on MIT's Media Lab concept, opened at a former Guinness site in Dublin. Despite start up funding of €35million from the Government, it closed just five years later. Today the site is occupied by The Digital Hub, hosting a cluster of technology digital media companies.

More positively, launched in 2021, IPUT's Living Canvas at Dublin's Wilton Park became the first non-commercial outdoor digital arts screen in Europe, and the second of its kind in the world. Since its launch, the work of more than 100 artists and writers have been showcased on the

banks of the Grand Canal, demonstrating digital art's power to be a truly democratic platform.

Living Canvas alumni show the strength of artists working in this field in Ireland. They include the multi-award winning Elaine Hoey, who was also a pioneer in virtual reality installations, and whose work investigates different takes on accepted histories and narratives. Ailbhe Ní Bhriain's mesmerising work intermingles film, computer generated imagery, collage and installation to create imagined spaces where the real and the dream-like coexist.

Bassam al Sabah uses sculpture, animation and computer generated imagery to explore ideas of memory, fantasy, displacement and home, and Aoife Dunne fuses costume, technology, sculpture, sound, performance and video to shape large-scale digital environments that draw the viewer into immersive other-worlds.

Digital art also gives creatives with an eclectic set of definitions the tools to explore their ideas. EL Putnam is an artist and a philosopher who works with digital media, sound and performance art. In her work we realise that, to turn Marshall McLuhan's famous phrase on its head, the medium may not be the message, but it's certainly the best tool for expressing the complexities of contemporary life and thought.

Alan Butler and Lucy McKenna have both been exploring the field of generative art, where the artist inputs images and parameters, from which a computer programme develops an ever-changing evolution, creating images that have never been seen before and will never be seen again. Now based in the United States, another Irish artist shown at Living Canvas, David O'Reilly demonstrates how artists working in this field often cross-over without harbouring any of the artistic anxieties that may have beset previous generations of artists shaping parallel careers in adjacent worlds, such as advertising or graphic design. The Kilkenny-born artist is also an animator, film maker and video game developer.

Still, the pace of change that the digital art revolution has wrought breeds undeniable and perhaps justifiable anxiety; but compare it with dark prognostications in the 1800s, that the invention of photography would spell the end of painting to get some perspective. Instead of ushering in the end of art, photography gave painting the space to leap into abstraction.

All art, however it manifests in the world, is first shaped by human

imagination. Even learning AIs must be programmed. But all change requires thought, both in how it is developed, and how we receive and understand it. In the music world, Martin Clancy has been exploring the impact of AI, and his book, Artificial Intelligence and Music Ecosystem is a fascinating collection of essays on the topic from a related branch of the arts.

Artists have always manipulated images. From trompe l'oeil to collage, what you initially see isn't always necessarily what you get, but computers broadened access, and in the process muddied the waters of what had initially been a simple definition. Today we have anything and everything, from the likes of iPad drawings, made mainstream in the upper echelons of the art world (if that isn't an oxymoron) by the likes of British artist, David Hockney; all the way to NFTs, that bizarre collectors' cul de sac where you buy something that isn't physically in existence, and which is surely a high – or low – point depending on how you look at it, in the extremities of capitalism's influence on the art world.

Today, digital art sits at an odd crossroads in Ireland, and in the world. On the one hand, it gives artists more tools to create than ever before. Music and images, both moving and still, can be manipulated and generated without the need for an entire team of specialists. On the other hand, AIs such as ChatGPT are giving rise to more end-of-days predictions by some. For others, Artificial Intelligences are opening doors to existential explorations of what it means to be human, which is, after all, one of the traits underpinning any art worthy of the name.

Perhaps the biggest change that digital media have brought to art is that democratic access they have opened up. Today, almost anyone can make art that looks like art, or press a button to extrude writing that reads like writing. Whether the outcomes have the substance to endure is what will mark them out as artworks, rather than merely disinteresting digital decorations in the as yet unimagined future.

Nadia J. Armstrong



DIGITAL NATIVE (2020), Nadia J. Armstrong
Installation image of DIGITAL NATIVE at Woman in the Machine exhibition at VISUAL, Carlow, 2021

This image depicts video performance piece DIGITAL NATIVE (2020, 12mins, 38secs duration) at the 2021 Woman in the Machine exhibition, VISUAL Carlow. This iteration consisted of a large-scale video projection on the gallery wall, with accompanying sound accessed via headphones. The exhibition was launched as part of Carlow Arts Festival and the 2021 Brightening Air programme, supported by the Irish Arts Council.

DIGITAL NATIVE interrogates the conditions of what Armstrong refers to as "the Data Nation", specifically: identity, agency, agenda, subjectivity - and the complex cultural relationship between them as they increasingly dominate the newfound platforms of our reality. Throughout the piece, we see the artist performing on screen as a digital native, encountering

the physical nature of technology and re-imagining it outside of its pre-defined context. The work draws upon virtual performance techniques, conjures 3D avatars and employs the green screen as a site of physical and non-physical investigation. DIGITAL NATIVE reflects upon how easily fantasies surrounding digital tools can be hijacked by networks of control to warp and influence our understanding.



EDIFICE UNBOUND (2022) Nadia J. Armstrong
Installation image of EDIFICE UNBOUND at the 2022 Art in the Contemporary World MFA Graduate Showcase, National College of Art and Design, Thomas St., Dublin

EDIFICE UNBOUND (2022, 14mins, 21secs duration, on a loop) is a multi-channel video installation that explores tangible realities of how infrastructures of late capitalism produce social conditions that are driven by economic forces of commodification and circulation.

Through interrogating the co-opting of edifices that make up public space and link us to the digital sphere, the piece questions the boundaries of access and social hierarchies that infrastructures define. Using the lens of observational film, the work contains documentary footage of public space, taken in Paris, London, Dublin and Tallinn. The footage was filmed by the artist using her iPhone - she adopts the performative gesture

of an omnipresent anonymous observer, surveilling how bodies navigate through networked infrastructures.

The piece incorporates 3D components, spoken word, found audio and AI-generated footage that was produced through an open source Generative Adversarial Network. This is a form of AI that responds to a user's typed statements with visual responses that are generated through reading the inputs against a database of images from the internet.

This installation adopts a sterile, hyper-corporate aesthetic. Three monitors are positioned like sculptural forms within the space. The audio plays aloud via a hidden speaker. Three white office chairs positioned in front of the screens act as audience seating. The large centre screen is wall-mounted and displays the main channel video. It is accompanied by two side channel monitors, positioned on plinths. The side channels highlight, mirror and reverberate the footage playing on the centre screen. Grid-like displays of wall prints, depicting selected infrastructural sites of investigation, are positioned on two walls within the space. One instance of this is shown here.

NADIA J. ARMSTRONG is a visual artist working with performance, 3D composition, AI and expanded video installation. Her practice is concerned with the commodification of human emotions and our relationship to the machines we create. Her work arises out of the symbiosis between human and machine, device

and individual. Armstrong's practice questions the agency of our digital identities and highlights the socio-political contestation of public and private space. She uses video collage, performative gesture, documentary techniques, machine learning, virtual environments and 3D components to tap into ideologies of post-industrial alienation that mutate the communal guidelines of physical space. She treats machine learning processes, data accumulation methods and computational systems as creative and cultural material with which to explore the conditions of our existence.

In 2020, Armstrong received a Digital Society Bursary Award, the RDS Mason Hayes & Curran Centre Culturel Irlandais Residency Award and the Fire Station Artists' Studios Digital Media Graduate Award. In 2021 she was one of 13 European artists under 30, who received a Goethe-Institut A.I. Residency Award. She was also a recipient of a 2021 Dún Laoghaire-Rathdown County Council Emerging Artist Grant. In 2022 she was awarded the inaugural Accenture Digital Innovation in Art Bursary at the Business to Arts Awards. Armstrong also received a 2022 Visual Arts Bursary from the Irish Arts Council and was selected for Galway Culture Company's 2022/23 Cybernate residency programme, produced by Culture Works, in partnership with Hacnum, Pôle PIXEL, Crew, ATU and the French Embassy in Ireland. She is currently lecturing at NCAD with the Creative Futures Academy - delivering a bespoke elective titled "The Theatricality of the Word in Contemporary Art-Making."

Exhibitions during 2022/23 include the Mart Studios Members Exhibition at the Mart Gallery in Rathmines, Dublin, the 192nd RHA Annual Exhibition at the RHA Gallery at Ely Place, Dublin, "Performing Research: four directions of artistic inquiry" at Solstice, Navan and "You breathe differently down here" curated by Amanda Coogan at Draíocht, Blanchardstown, Dublin.

Practitioner Reflection

Nadia J. Armstrong

I am a digital artist, a performance artist and a visual artist. My practice is a performative gesture of interrogation into the conditions of post-humanism. My work produces speculative fictions that pursue new possibilities for digital literacy, agency and ethical engagement with technology. I create immersive multi-channel video installations that tell stories about the socio-technical landscapes of our pasts, presents and futures. My practice is research-driven and is rooted in socio-technical studies. My video experiences chronicle nodes of digital history, questioning the agency of our digital identities and highlighting the socio-political contestation of public and private space.

DIGITAL NATIVE (2020) explores the socio-political meanings of engagement with global, virtual networks through metaphorical gesture within the context of the green screen. We see the Digital Native encountering virtual spaces and objects within them, moving through stages of awareness, interest and attention. Toying with objects the Digital Native becomes enlightened yet frustrated, discovering the physical reality of the digitised tools that surround them. The performance reverts to the physicality of things, addressing the connotations of our attachments to technologies. The work does not look directly at the narrators of digital deceit, but instead, it looks internally, reflecting on the experience of the individual that sits in front of the screen. The piece asks questions rather than provides answers: what does it mean to inhabit new virtual spaces? How do they influence us, inhibit us or liberate us?

In my work, I amalgamate and contort mediums that hold contemporary relevance, coupling tropes from literature, theatre and film with tropes from the internet - the cultural hub of my generation, who have grown up with every complex new system society embraces, abandons and replaces. My video works deconstruct cyborgian narratives. As a practitioner, I feel I am embedded within the technologies that I use to produce art. I explore the facets of identity that we see online through digital performance techniques. In DIGITAL NATIVE, I position myself within the piece as a virtual avatar - questioning virtuality while also existing within it. The avatar is one of multiple voices. These voices are the many narrators of the internet, they are the vast loneliness, the desire to belong, to be consumed, they are the allure of the dark underbelly of the internet, and they are the conflicted innocent, who engages, but is unsure if they should.

In EDIFICE UNBOUND (2022) I combine AI images with iPhone documentary footage. The work seeks to interrogate the surveillance networks that permeate public space, tracing the trajectories of neoliberal economic policy's infiltration of sociopolitical systems and their governance. The title refers to the myth of Prometheus, which is used as a paradigmatic in post-humanist theory to signal the redefinition of agency in the digital age. The choice of the word "edifice" positions this paradigm in relation to immense infrastructural changes that are altering the global economic landscape.

During production, I gathered cultural and historical nodes that mark the transition into surveillance capitalism, piecing together an unconventional archive that tells stories about our digital histories. The viewer is presented with an amalgamation of socio-technical artefacts: notes on anthropological observation of digital infrastructures, Elon Musk explaining how easy it is to kill someone using a hijacked drone, Ronald Reagan urging individuals to fend for themselves, Margaret Thatcher's claim that there is no society, Jeff Bezos thanking his workers for funding his trip to Mars, virtual bots questioning their existence and the voices of the internet's vanguard of snake oil salesmen, urging you to take control of your life today!

Fiona McDonald

The data driven video In Search of a Blanket Bog was generated using environmental data from the Cooley Mountains. During the Covid Pandemic lockdown the artist collaborated with Internet of Things (IoT) company Taoglas, bringing their IoT sensor kit into the mountains to track her position and collect weather data.

The environmental data, ambient light, temperature and humidity were recorded and sent back to Taoglas Insights, a cloud-based software platform, in real-time. McDonald created an algorithm that takes the recorded environmental data and uses it to generate audio and coded drawings. The work comes to life gradually as the received weather data changes. The data driven drawing is layered on a static photograph taken at a sensor data collection point. The system also responds to the collected fluctuating data using it to modulate the frequency of a sine wave oscillator creating a soundscape. In this way, the viewer is given access to different forms of pattern recognition.

In Search of
a Blanket Bog (2022)
Fiona McDonald

Photo: Aisling McCoy
VISUAL Gallery, Carlow



McDonald often leaves the hardware transparent in her works. In Search of a Blanket Bog incorporates a Texas Instruments projector module running on a Raspberry Pi (a single-board microcomputer). The inner workings are left exposed, revealing the role of the machine. A number of the artist's data-driven animations and sound compositions ran on four Raspberry Pis situated across the gallery. Though physically separate, the soundscapes overlap in the acoustic space.



Gateways (2018), Fiona McDonald

Commissioned by Linda Shevlin, Roscommon Arts Centre, for an offsite exhibition at King House, Boyle

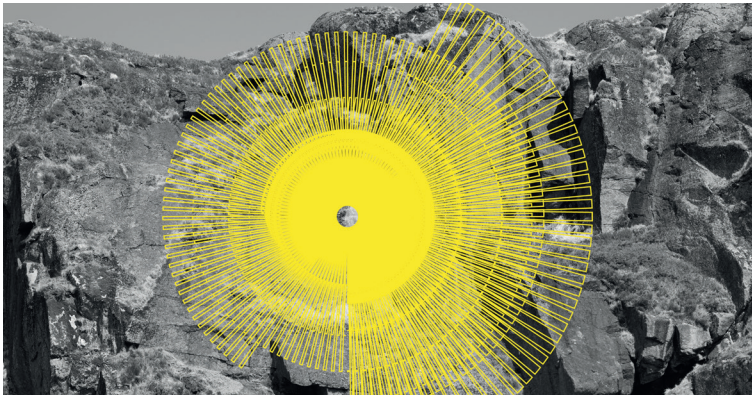
The works were developed with the support of Dr David Murphy, Space Science Group at UCD Department of Physics, during an artist residency at Parity Studios UCD, SFI's CONNECT Center for Future Networks at TCD, Science Gallery Dublin, I-Form Advanced Manufacturing SFI Research Centre, Dept of Industrial Design NCAD, Dept of Architecture, UCD.

McDonald's Gateways exhibition explored astronomical data and the idea of making it more readable or tangible to the viewer. It comprised several works: GRB Locator Array, Sputnik, [1111100] and GW150914.

GRB Locator Array is a 1.5 metre tall data driven robotic sculpture which responds to real time satellite data and points to the position of the most recently detected gamma ray bursts (GRBs). GRBs are the most violent explosions in the universe, they occur the instant before a star explodes. Using custom designed hardware and software the motorised robotic sculpture responds to real-time Gamma Ray Coordinate Network (GCN) data and points to the position of the most recently detected GRB. The backlight LED display titled [1111100] responds to the level of gamma ray radiation of the five most recently detected Gamma Ray Bursts (GRBs), versus time. The backlight LEDs usually used in iPhones are mounted on laser cut cases based on iPhone design. Although [1111100] visualises recently detected GRB's, these Gamma Rays have travelled millions of light years from far off galaxies. Thus in some ways the work is reminiscent of Sci-fi time travel interventions allowing us to look into and communicate with the past. Sputnik is an algorithmic animation created in Processing, a Java based programming language for artists and designers. GW150914 visualises gravitational-wave strain data from the US-based Laser Interferometer Gravitational-Wave Observatory (LIGO). LIGO is a large-scale physics experiment and observatory designed to detect cosmic gravitational waves. In 1916, Albert Einstein predicted the presence of gravitational waves in his theory of relativity. One century later, LIGO recorded the first sounds from space, evidence of the waves' existence caused by the collision of two black holes.

FIONA MCDONALD is an interdisciplinary artist and educator based in Dublin. She holds a BSc in Biological Chemistry from Coleraine University of Ulster, a BA & MA Fine Art from National College of Art and Design, and an MSc in Multimedia Systems from Trinity College Dublin. She works primarily with sculpture, installation, print, sound, hardware and code.

She is a current Artist-in-Residence at the Royal Hibernian Academy and recipient of an Arts Council Project Award for 2023. In 2020, she was the inaugural Artist-in-Residence in Innovation and Technology at Talent



In Search of a Blanket Bog (2022)
Fiona McDonald

This work was an outcome of an inaugural Artist Residency in Innovation and Technology at DCU Alpha and Talent Garden supported by DCU and Arts Council of Ireland.

Garden and DCU Alpha, funded by DCU and the Arts Council of Ireland. She was a recipient of an Arts Council of Ireland Bursary Award in 2021. She received an Urgent Enquiry Dublin City Residency Award in 2019, an Arts Council Bursary Award in 2018, and was Artist-in-Residence at UCD Parity Studios from 2016-2017.

Recent exhibitions featuring her work include Transcoding - The Living Mountain, Talent Garden, Dublin; Woman In the Machine, VISUAL Gallery, Carlow; In the age of Conscious Makers, NCAD; Gateways, Kings House, Boyle, In Case Of Emergency, Science Gallery, Dublin; Light Lines, Mermaid Arts Center, Wicklow. Her work has also appeared internationally in Copenhagen, Paris, New York, Los Angeles, and at the Cologne Art Fair.

From 2021-2022 she was a visiting lecturer at NCAD where she contributed to the Critical Practices in Environment and Ecology course. From 2017 to 2019 she was a visiting member of Orthogonal Methods Group OMG at CONNECT Center for Future Networks at TCD. Between 2013 and 2019 she worked as a visiting assistant lecturer on NCAD's MA in Interactive Design MA, MA in Art in the Digital World, and BA in Fine Art Media.

DIGITAL ART: AN INCOMPLETE STORY

CONOR MCGARRIGLE

I think of art, at its most significant, as a DEW Line, a Distant Early Warning system that can always be relied on to tell the old culture what is beginning to happen to it.[1]

I begin with a Marshall McLuhan quote, a favourite of digital artists as they attempt to define the relationship between digital art, technology and culture. The DEW Line McLuhan refers to was the cold war era network of radar stations stretched from the arctic through Canada to the United States designed to warn of nuclear attacks from the Soviet Union, and an important precursor for the development of the internet. It highlights the complex origins of today's digital technologies, the predictive quality of (digital) art and the role of art and technology in shaping social and cultural change. In this short essay I want to touch on two aspects of these relationships in the context of Irish digital art. Firstly, I ask what it means to speak of digital art in the context of an advanced digitised society, and then turn to Irish digital art to ask what it is and why it remains relatively unacknowledged in the broader narrative of Irish art practice.

CONOR MCGARRIGLE is an artist, researcher, and lecturer in Fine Art working primarily with digital media.

1. Marshall McLuhan (1964), *Understanding Media: The Extensions of Man*.

What is Digital Art?

If there is one aspect of contemporary life that impinges on all aspects of the everyday it is digital technology in a multiplicity of forms; as computers, devices, and infrastructures, as algorithms and AI, and digital media and communication. Digital technology has become a mediator through which is filtered the experience of our lives. Digital devices help us communicate, they are our cameras, they store and preserve memories, they are our offices and entertainment centres, they have transformed public space as they reconfigure the boundaries between public and private, and shifted ideas of temporality and liveness. They are deep sources of knowledge that, according to experts, simultaneously make us more connected and more isolated, smarter and dumber. For the philosopher Bernard Stiegler their impact is even more profound in that they are driving a new process of proletarianisation; a de-skilling that takes away our savoir vivre the knowledge of how to live well. Digital technology drives our economy, in Ireland technology companies have become a cornerstone of industrial policy employing hundreds of thousands of workers. Nonetheless, they have become a source of great anxiety and moral panic with concerns over digital addiction, decreasing attention spans, and the surveillance practices of the digital economy that degrade privacy in ways that would make the Stasi blush. This is all enabled though a globally interconnected energy hungry infrastructure that accelerates climate crisis while perhaps pointing to its solution. In short, it's complicated.

What then does it mean to speak of digital art? As art reflects the concerns of its age does it make sense to speak of a digital art when in fact it is difficult to imagine an art that is not in some way inflected by this contemporary condition? Does a digital art presuppose an art that is in some way non-digital or analogue perhaps? How would this be defined, through a simple binary of digital tools used in the production or display or no digital production methods employed: or is that too blunt a tool that fails to consider the conditions of production and the long supply chains of materials? I teach fine art working with young artists who make films, craft sculpture, perform, paint oil on canvas, draw, weld, cast concrete, and program computers. The question of medium specificity is always in flux; is painting about instagram digital art even if it uses traditional non digital

means, more so than exploring traditional methods of portraiture but with the latest digital camera? I concede that I'm labouring the point, but I do so to underline that there are no clear demarcation lines in where a digital vs a non-digital art lies.

Certainly, when visiting the bellwether exhibitions of the international art world, biennale exhibitions like the Venice Biennale of Art, Documenta, or modern art museums anywhere in the world you are left in no doubt that digital technology in myriad forms underpins and informs many contemporary art practices. Digital technology is omnipresent, from the unremarked video projections and digital screens, generative AI works and sensor-based interactivity, to aesthetic concerns and image-making practices that reflect their digital workflows. In the same way that photography inflected modern art at the start of the 20th century, contemporary art mirrors everyday life in its attention to, and concern with, digital technology as medium, subject and perspective.

Art in an Age of Digital Ubiquity

We live in era of ubiquitous technology. Ubiquitous technology (or ubicomp or even quiet computing) was a concept introduced by 1990s digital visionary Mark Weiser at Xerox Parc research – the Google X of its day. Weiser spoke of ubiquitous technology as computational power integrated into almost everything, it was a technology that would fade from view only to come to attention when it fails. The idea of ubiquitous technology was nothing new, electricity for example was a transformational new technology that receded from view as it became essential only coming to attention with failure, or as we've seen more recently through its rethinking as sustainable energy. Digital technology has become ubiquitous, but not quite in the terms that Weiser predicted. Digital infrastructures, communication cables, data centres, energy and carbon costs have receded from view while simultaneously digital devices are rarely out of sight as they battle for our attention at an intensified global scale.

There is an argument that as digital media and technology are so deeply integrated into all aspects of contemporary life that their influence is all encompassing, thus negating the need for art that is specifically digital. The influential critic and curator Nicolas Bourriaud accepts an indirect

influence; for example the grow of the internet and network culture from the 1990s results in a growth of art that explores new social situations – the relational aesthetics movement in contemporary art that he theorised and promoted – and a privileging of the screen as a formal framing device.[2] The dissenting view is that there is a more direct influence as new media allow for new ways of seeing the world, new modes of visuality and new ways of organising, accessing and interacting with information.[3] What media theorist Lev Manovich in 2001 called the language of new media. In order to fully understand these changes art needs to not only employ digital tools but understand how they are operationalised and the assumptions and mechanisms that underpin their function. This is obvious when confronted with the latest generation of AI image generation systems, DALL-E, Midjourney or Stable Diffusion that have brought digital art back to mainstream attention. At first impression they can create images comparable to the work of accomplished artists, but faster and with endless variation. To fully understand what is happening we need to know more about the architecture of the novel neural networks that power them (generative pre-trained transformers, GPTs that also power large language Models such as ChatGPT), the process of training including the nature and source of its training material and spend some time working with them to understand their limitations.[4] In other words, a process of engagement built on knowledge that allows one to peer behind the curtain to see how the magic happens.

The Case for Digital Art

This is where digital art is situated; as a critical art practice that attends to digital media and technologies as expanded field of inquiry, not just tools to be used in prescribed ways. There are, of course, a plurality of approaches to digital art that are worth briefly iterating. Digital art at the most obvious

2. See the 2013 Art Basel Salon, Art and Technology Contemporary Art and New Media: Towards a Hybrid Discourse, youtube.com/watch?v=9p9VP1r2vc4
3. The MIT book series Platform Studies edited by Ian Bogost and Nick Montfort is a case in point.
4. There has been extensive scholarship on the question of systematic bias in machine learning/AI coming from training data used and recently a growing concern that image generators are in fact plagiarising artists and designers at industrial scale.

is an art where digital technologies act as medium, an art that explores the specificity of its medium to make an art with aesthetic qualities and characteristics that are not achievable in other ways; for example glitch art that relies on breakdown of file formats and devices as aesthetic device. It can also rely on the technical attributes of digital technology as delivery and engagement mechanism to bring art to its audience; for example, giant public screens, interactive and responsive artworks, VR headsets or internet art that brings art to its audience at different scales from public spectacle to intimate experience. Digital art could equally address the societal impact of digital technologies from the broader social, environmental, political and economic issues without recourse to any technology at all. Another avenue of inquiry is that of formal aspects of screens, images and sound and the nature of visuality in an age of digital abundance. Performance and embodiment through technology is yet another rich avenue of engagement that falls within the diverse field of digital art. As digital media and technology develops artists follow, dynamically developing new forms of critical and aesthetic engagement that sets digital art apart as a field of practice with concerns that fall within the broader church of contemporary art, yet with its own distinctive specificity.

This is why I believe that digital art as a classification still holds relevance. Despite these contradictions I argue that there is a need for a Digital Art; that is an art that attends to digital technologies and their impact not only in the world of art but beyond. That digital art is needed for further understanding of the aesthetic, cultural and societal implications of digital technologies as they increasingly dominate contemporary life. In the history of technology there is a recurrent phrase; things could have been different, that is that despite narratives of inexorable technological progress after the fact, that there is no teleology of technology. Technological development and the adoption of technology into everyday use is a contingent process full of chance and missed opportunities, with ideas of developers and designers often turned on their head when people start to use their products in unexpected ways. Digital art acts in a similar way as it engages with technology in the way that only art can: untangling the meanings and values that we attribute to technology in order to incorporate them in our lives, unravelling the intimate strands that connect us physically with our bodies to digital devices, and seeing them in new and unexpected

ways as aesthetic objects and processes.

Is There a History of Irish Digital Art?

In thinking about technology, it is often fruitful to look toward the past to contextualise the novelty of today's technology. The historian of technology Carolyn Marvin in her groundbreaking book When Old Technologies Were New (1990) asked readers to think about digital networks through the introduction of telephone networks in the 19th century, revealing the similarities between the concerns about telecommunications technology disrupting social norms and contemporary discourse on internet platforms and apps, from Facebook to TikTok. Using the same approach, I propose that to understand Irish digital art we must go back to early examples and understand how digital art is both a product of its time and a harbinger of things to come. In order to do this it's necessary first to define our terms more precisely to understand why digital art matters, but at the same time acknowledging that this is a notoriously slippery task. Digital Art is not necessarily art (visibly) made with digital tools, or art that showcases some aspect of digital technology, from digital networks like Net Art or NFTs, to emerging display like AR/VR or holograms, or even art that is made for digital distribution. It can of course be all these things too, but in thinking what digital art does that is deserving of a distinct status I focus on the idea of attention; that is that digital art attends to the digital. In the great tumult of newness, amidst the hype and spectacle of digital technologies in what has been called the attention economy, digital art calls attention to what these technologies are and their impact in the world. This can be through building critical approaches that examine the underpinnings of these technologies that go unnoticed – for example Ireland's representation at the 17th Venice Biennale of Architecture, ANNEX with their exhibition Entanglement that called attention to the materiality of cloud computing. It could equally be the attention to processes of narrative co-creation through AI we see in the work of writer Joanna Walsh, or the mediated realities of digital image making and their real world materiality in Alan Butler and John Gerrard's work, or poetic mediations or the performative mediations on bodies in technology that suffuses the performances of of EL Putnam and Katherine Nolan. With these practices developing their own aesthetic that reflects

digital processes and digital ways of seeing to make art that intervenes in; what the pioneering media artist Nam June Paik might have have called, the open circuits of digital technology and its entanglements in the world.

How then to think about an Irish digital art? Can we trace a history that informs this contemporary work in the way that we might in thinking about other art practices? One might assume that as the impact of the digital economy is felt more profoundly in Ireland than in most places that digital art would follow this trajectory. Even though Dublin is the digital capital of Europe with almost all of silicon valley's mega corporations packed into Dublin's silicon docks this impact has not been reflected in Irish art, with self-consciously digital art playing a lesser part in the Irish art landscape than elsewhere. Although Irish digital art may seem to be the poor relation to other art forms, I suggest that this owes more to gaps in telling its story and preserving the legacy of Irish digital art rather than the quality of the art itself. In considering Irish digital art I begin with the contention that Irish digital art has a history, that this history is worth preserving, but that it is rapidly disappearing. This arises not from a deliberate act of erasure, but rather from a failure to recognise its very existence and relevance, together with a lack of appropriate preservation initiatives. The reasons for this are complex and multifaceted. They arise from the precarious status of digital art in Ireland and the nature of the work itself. Digital art has never had a sustained presence in established Irish galleries, arts centres and museums – the exception being Dublin's Green on Red gallery – and was instead supported by an ecosystem of ad hoc artistic communities and supporting institutions that no longer exist. The result is that what records and documentation that exist lie in artists personal archives and websites which lack any guarantee of permanence.[5] I identify a period in the later 1990s and early 2000s as a critical and influential time for Irish digital art, however the activity of this time is relatively unknown and poorly documented, this I suggest is problematic in considering the development of digital art in Ireland and warrants a closer look.

5. I discuss the problems of self-archiving and the longevity of digital art at more length in Preserving born digital art : lessons from artists practice, *New review of information networking*, vol 20, no. 1-2.

Arthouse Multimedia Centre for the Arts

While a more detailed account of this early period of Irish digital art is outside of the scope of this article I will briefly outline key elements that framed digital art in this period. Arthouse Multimedia Centre for the Arts was established in 1992, located in a Shay Cleary Architects designed building in Dublin's Temple Bar Curved Street with the stated mission of "furthering the use of digital technologies in Irish artistic practice". As an institution Arthouse was dogged with controversy, continued funding struggles[6] and a building not suited for purpose. Even the term 'multimedia' itself was as source of friction as it was perceived to exclude certain art practices while favouring commercial work. Originally slated as a home for the Sculpture Society (since subsumed into Visual Artists Ireland) and a resource for media production facilities, it controversially shifted to emphasise training and employment skills with funding from FÁS the Government training agency and depended increasingly on training revenue. In 1999 the first artistic director was appointed (previously the centre director doubled as artistic director) with artists Niall Sweeney, Tim Brennan and Sarah Pierce holding the position in rapid succession.[7]

Arthouse played an important role in increasing awareness of digital art in Ireland through its presence in a landmark building in Dublin's Temple Bar. It was instrumental in providing skills training in multimedia production targeted at artists and designers, a rarity at this time and vital in providing access to digital tools that were at this period beyond the means of most artists. The greatest contribution though was its programme of exhibitions and artistic residencies, which for the first time curated exhibitions of digital art in Dublin and provided artists the tools, space and beginnings of a community to not only make but consider digital art as part of a broader contemporary art practice.

The community aspect was of particular importance as it brought together an ad hoc community of artists, curators and audience who were at this time exploring the boundaries of digital art. At this time in the late 1990s early 2000s the internet was still emerging, very few could imagine the

6. See Another Fresh Start for Arthouse, https://www.irishtimes.com/culture/another-fresh-start-for-arthouse-1.235882

7. See Orla Ryan House Style Circa 97, https://circaartmagazine.net/issues/issue97/

extent it would dominate our lives just a decade later, accordingly artistic engagement with the new medium was still at the fringes of contemporary art practice. An argument could be made that Arthouse in this period has cast a long shadow; relatively few artists passed through its doors but those that did have continued as influential pioneers in digital art as it has moved closer to the the core of contemporary art. Despite this significant, and I argue long lasting, impact little has been written on Arthouse and documentation of this period is scarce.[8] When Arthouse shut down, its website which contained an archive of activities was hastily deleted and its record of that period lost. This account of Arthouse is based on personal experience and as such incomplete. I completed a short Arthouse residency in 2000 and a longer one in 2001, I exhibited there in 2001 and was active in the digital art scene in Dublin at this period. Other artists associated with the centre at this time included Slavek Kwi, Paul Murnaghan, Saoirse Higgins, Cliona Harmey, Mark Cullen, Brian Duggan, Sarah Pierce, Leah Hilliard, Mick Wilson, Martin McCabe all who still play significant roles in Irish art communities today.[9] There is a need for more considered research on this period and its influence on Irish digital art at the time and on the careers of the artists, curators and educators involved.

The other significant pillar of the digital art community at this period was DATA (Dublin Art and Technology Association) an artist led community founded by Jonah Brucker-Cohen and Nicky Gogan in 2002, with involvement from a revolving community of artist and designers with an interest and engagement in digital art practices.[10] DATA was an inclusive community that hosted informal talks and sharing sessions – originally held upstairs in the Stag's Head pub. The format was eclectic, typically including artists showing new work, academics theorising, and hacker experiments in a single session, with more occasional events like curated exhibitions and technical workshops. The community revolved around the events, an active

8. NIVAL at NCAD hold a file on Arthouse with limited details of 75 exhibitions and events over a six year period nival.ie. They also hold records of the Artifact CD-ROM database of Irish artists developed at Arthouse.
9. A very subjective list based on my imperfect memory which points to the needs for further research on this period in Irish digital art.
10. There are too many names to list here but the DATA.ie website has reasonably comprehensive listings.

mailing list in the early days, and a website. Since its founding there have been 73 DATA events[11] with these events intersecting with official digital initiatives such as Media Lab Europe and the Digital Hub and working relationships with the Science Gallery, Darklight Festival and the Irish Museum of Contemporary Art (IMOCA).[12]

Preserving Irish Digital Art

While digital art in this early period can be framed by institutional and community frameworks such as Arthouse and DATA neither provide an archival history of the art. Arthouse because everything was lost with its demise; although DATA has retained limited archives of its events it was never within its remit to act as repository and this material is limited and doesn't extend to actual work. In addition, the story of digital art in this period has largely been omitted from histories of Irish art with the result that there is no discernible scholarly efforts dedicated to its discovery. Digital art, especially pioneering work, is inherently fragile and susceptible to loss either through poor archival practices, obsolete formats, or failure to consider preservation as a priority. Perhaps the greatest issue is that there's often limited knowledge even of what has been lost. I suggest that in order to understand the nature and extent of this loss it is necessary to first identify what we mean by a history of Irish digital art in order to understand the preservation task. At one level it can be thought of as a history of digital art works that need preserving, either as functioning works or through documentation. However, I suggest that a process of identifying and preserving canonical works will be limited unless these works are located within their context of practice and community. In this period, digital art operated outside of the mainstream structures of Irish art, establishing its own ecosystem of sorts. While there were of course many overlaps and intersections, digital art largely eluded contemporary art's institutional frameworks with their archival infrastructure and remit. For many digital artists legacy was not a priority, the ephemerality of the digital was an attraction even if the fragility of digital formats and of the internet as an archive wasn't yet fully understood . The result, as seen internationally, is

11. These are documented at data.ie
12. IMOCA was an artist-led studios and gallery complex founded by artist Kay Koss.

inherently fragile work that requires medium specific archival processes. In the Irish context this is further complicated by basic lack of information on whether there is even a history to be preserved, before one even gets to the who made what, where and when. Many artists involved in this period are still active artists whose mature style has moved in ways that is informed by early digital work and community participation but in ways that are not readily discernible in scholarly evaluation with no available record.

Why does this matter? I suggest that in any historical account of contemporary Irish art the omission of digital art gives an incomplete picture. Without some account of this period it is not possible to gauge its importance and the nature of its influence on Irish art practice. As it obvious even with my brief outlining of the case of Arthouse I suggest that the window of opportunity to capture this history is closing fast, and without action Irish digital art will be erased from the art historical record.

ARCHIVING IRELAND'S DIGITAL ART

CATHERINE BOURNE

Irish digital art has been steadily gaining momentum as artists explore the possibilities of new technologies and seek to create works that engage with the contemporary world. From interactive installations to virtual reality experiences, Irish digital artists are producing innovative and thought-provoking works that challenge traditional ideas about what art can be.

Irish artists are using the digital to explore a wide range of themes and ideas. Many are exploring digital and physical relationships and using technology to create works that blur the boundaries between the two. Others are interested in exploring the potential of immersive technologies, using VR and other technologies to create works that transport viewers to new and unexpected places and offer unique and compelling experiences that are impossible to achieve in traditional media. At the same time, new technologies' ethical and political implications present an ongoing challenge. Many artists are using their work to critique how technology shapes our lives and to explore the potential dangers of a world increasingly dominated by digital media.

Art is increasingly created and disseminated in digital formats in the digital age. This has led to a growing recognition of the importance of archiving digital art to ensure its preservation for future generations and facilitate its study, interpretation, and exhibition. One of the primary reasons why

CATHERINE BOURNE is an Australian artist, researcher and educator based in Leitrim. She teaches the history and theory of digital art at University College Cork, and works with the Arts and Culture in Education Research Repository, a deliverable of the Arts and Education Charter.

archiving digital art is so important is that it is often highly ephemeral and challenging to reproduce. Many digital artworks are created using software that is rapidly becoming obsolete or with hardware that is difficult to find or maintain. As a result, these works can quickly become unplayable or unreadable, making it impossible to access them even just a few years after their creation. Additionally, digital artworks are often highly interactive and reliant on complex technical infrastructures, making it difficult to replicate the work experience in a new context. By archiving digital art, we can ensure that these works are preserved to allow future generations to access and engage with them, even as technologies continue to evolve and change. By preserving digital art, we can enable researchers, students, and curators to study and interpret these works in a way that allows them to appreciate their historical, social, and cultural context fully.

Archiving digital art is crucial because it allows us to maintain a record of our contemporary cultural heritage. Art has always been a way of expressing our values, beliefs, and experiences; digital art is no exception. As we move into the digital age, our cultural heritage is increasingly being created and preserved in digital formats. We risk losing a significant part of our shared cultural history without careful archiving and preservation. By preserving digital art carefully, we can ensure that future generations will be able to engage with and learn from these works and that they will continue to play an essential role in our cultural legacy.

Archiving digital art has its challenges. Unlike traditional art, which can be suitably stored and displayed in a physical space, digital art is often highly interactive, ephemeral, and reliant on complex technical infrastructures. As such, there is no one-size-fits-all solution to archiving digital art, and archivists must be prepared to adapt and evolve their practices in response to the needs of the works they are preserving. One of the critical challenges in archiving digital art is ensuring that the works are preserved in a way that accurately reflects their original form and intent. This requires a deep understanding of the technical specifications and requirements of the work, as well as a willingness to experiment with new techniques and technologies as they emerge. Additionally, archivists must be prepared to work closely with artists and other stakeholders to ensure that the work is being preserved in a way that is true to its original intent and vision.

Another challenge in archiving digital art is ensuring that the works remain accessible and playable over time; by its nature, digital art is subject to the fragility of technology and the rapid obsolescence of software and hardware. This requires ongoing maintenance and upgrades to hardware and software and a commitment to ongoing research and development in digital preservation. As new technologies emerge and old ones become obsolete, archivists must be prepared to adapt and evolve their practices to ensure that digital art remains accessible (and playable) for future generations.

An excellent example of this type of necessary archiving is The Net Art Anthology project. This initiative aims to preserve and showcase the history of net art, an art form that emerged with the rise of the internet in the 1990s. Net art is a unique medium that combines traditional art forms, such as painting and sculpture, with technology, interactivity, and participation. It encompasses diverse creative practices, including digital collage, video art, interactive installations, and online performances. The online art organisation Rhizome launched the project in 2016 with the support of the New Museum in New York. Its mission is to create a linear history of net art from its early days to the present and to create an archive of significant works that represent the diversity and innovation of the field. The project features over 100 works of net art, including seminal pieces by pioneering artists such as Shu Lea Cheang, Mark Amerika, and Jodi, as well as lesser-known but equally important works. The importance of the Net Art Anthology project lies in its role in preserving and documenting the history of net art and its provision of a platform for critical reflection and interpretation of net art. By showcasing significant works of net art and providing contextual information about their creation and reception, the project enables a deeper understanding of the medium and its cultural significance. It also serves as a resource for artists, curators, scholars, and students interested in net art's history and practice.

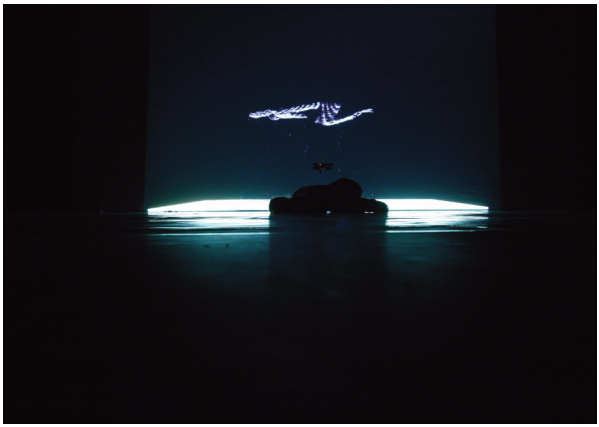
In order to keep abreast of changes in the international scene it is imperative that Ireland invest in the preservation, interpretation and study of Irish digital art. This involves support and training for artists and investment in the technical and curatorial supports to sustain a rigorous local scene. Many art schools and universities have successfully integrated digital new media (video, animation etc.) into fine and visual art streams.

We can argue, as we review this survey of Irish artists who are innovators in this field, that cultural resources such as this publication operate as significant historical markers in the development of this discipline on both the local and national level. The opportunities to expand the parameters of exchange by means of the contemporary forms of dissemination and access, create an opportunity for makers and their institutional partners to engage a demographically diverse audience. Let us reflect then on the legacy of these pioneers in this research and practice, considering the cultural legacy and need to preserve these works, while looking ahead toward future innovation.

Trevor Furlong

zeph.yr is an exploration of interaction through movement using sound and light. In the images shown, Rebecca Reilly can be seen interacting with a visual backdrop. To create this live performance a motion detection camera, which can see movement in dark spaces, follows the dancers movements on stage. These movements are then sent to a computer. A custom-made software program translates the movement into a visual representation and this is then displayed as a backdrop using a projector. The visual display changes with the choreography, controlled by the progression of all elements of Reilly's performance: using body shape, transitional movement and position. The performance is reflected in real-time on the projection screen. The projected reflection then influences the dancer and a communication between projection and dancer begins.

zeph.yr (2013)
Concept/Implementation: Trevor Furlong
Choreography/Dance Artist: Rebecca Reilly
Peacock Stage, Abbey Theatre, Dublin Dance Festival 2013
Photography: Paddy Cahill







In zeph.yr, digital technology is utilised in live art making. The art work is created at the point of the performance: it is only when movement is performed that the visual and sound art is created. No two performances or interactions will ever be exactly the same. The audience is witness to the creation of an art work and given the opportunity to encounter, observe and participate in the process of revealing something new.

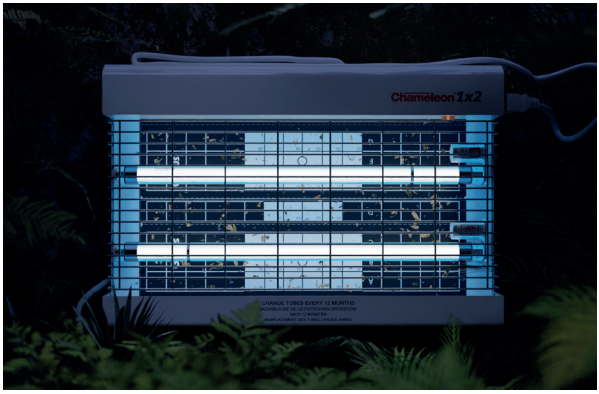
TREVOR FURLONG's work is an exploration of interactions using digital technology. He has designed and implemented interactive pieces for live performance (theatre, dance) and education. He employs new processes to create environments in which the action of live art making can be experienced by all, highlighting audience engagement. He has collaborated with several third-level institutions as well as Science Foundation Ireland.

Andrew McSweeney

Trap (2022) is a digital simulation consisting of photogrammetric processes, animation, and audio. This piece was exhibited as a three-channel video installation exhibited as part of the group show, The Stars Are In The Earth, at A4 Sounds in Dublin, August 2022.

Three individual monitors displayed three different climates of an industrial PestWest Chameleon electric fly trap placed in an outdoor environment. Each simulation was programmed to turn on at different times throughout the exhibition navigating viewers to different locations within the gallery space. The fly trap is a 3D model created and animated by the artist while the flies and surrounding elements of nature are a combination of newly scanned 3D scans as well as existing digitised assets taken from open-source libraries. The audio for the work is a series of organic collected sounds highlighting the lively approach to the production of the piece. The work explores ideas around equality and mortality as well decisions that are made daily by people and those who influence them. Insects and flies are simulated along different paths while the weather experiences rapid changes throughout the piece, ultimately heading towards one outcome. Slight changes to the climate throughout the piece, dictate and manipulate the direction the flies go in. The simulation underlines the freedom some of these insects have, with some lucky enough avoiding death, while others whether attracted by the flickering light or not, are forced to their final exit.





Trap (2022)
Andrew McSweeney

Installation view: three-piece video set with audio, featured in The Stars Are In The Earth, A4 Sounds, Dublin

Images courtesy of A4 Sounds, taken by Kate-Bowe O'Brien

ANDREW MCSWEENEY is an Irish digital artist who primarily works with 3D software and new technologies. He completed a BA in Fine Art at the Crawford College of Art & Design CIT/MTU, in 2015 and an MA in Interdisciplinary Design Practice in 2021 from the Limerick School of Art & Design. Recent exhibitions include his solo exhibition Alone Again, Natura Diddily at the Marina Market, Cork (July 2022), The Stars Are In The Earth at A4 Sounds, Dublin (August 2022), a virtual reality application

displayed at the Earth Rising: IMMA Outdoors: Eco Festival (October 2022) at the Irish Museum of Modern Art., as well as digital work displayed as part of the group show Switch / PLAY in Nenagh, Tipperary, Ireland (November 2022). He was funded by the Irish Arts Council in 2021/2022 and is a member of Sample-Studios & studio based member with Backwater Artists Group in Cork City, Ireland.

Practitioner Reflection

Andrew McSweeney

The exploration of my practice has strongly developed using 3D software and progressed towards the creation of digital reproductions taken from my natural surroundings. My work is based around themes of nature and digital environments. I primarily create installations consisting of sound, drawing & digital work such as video, simulations, and virtual reality (VR). The digital aspect of my practice involves creating hyper-realistic scans and textures that are accompanied by sound pieces. Digital models are also built alongside these assets highlighting the thin border of physical and virtual worlds amongst mixed realities. Areas of interest include the importance of existing digital preservation within academic research while simultaneously producing physical and digital work as a result. My own practice relates to the archiving of organic elements taken from nature and everyday objects. Places, objects, moments can essentially be captured and remembered through digital processes. Our relationship and responsibility to our land can be highlighted

through digital restoration processes such as photogrammetry that can aid cultural heritage in terms of preservation/conservation. Photogrammetric processes used in my work are relevant to its potential importance on digitally archiving content for future generations spanning across multiple disciplines including but not limited to education, visual art and academic research. New technologies and mixed realities enable artists as well as viewers to personally reflect on forgotten historic values and to have an equal understanding of important environmental discussions.

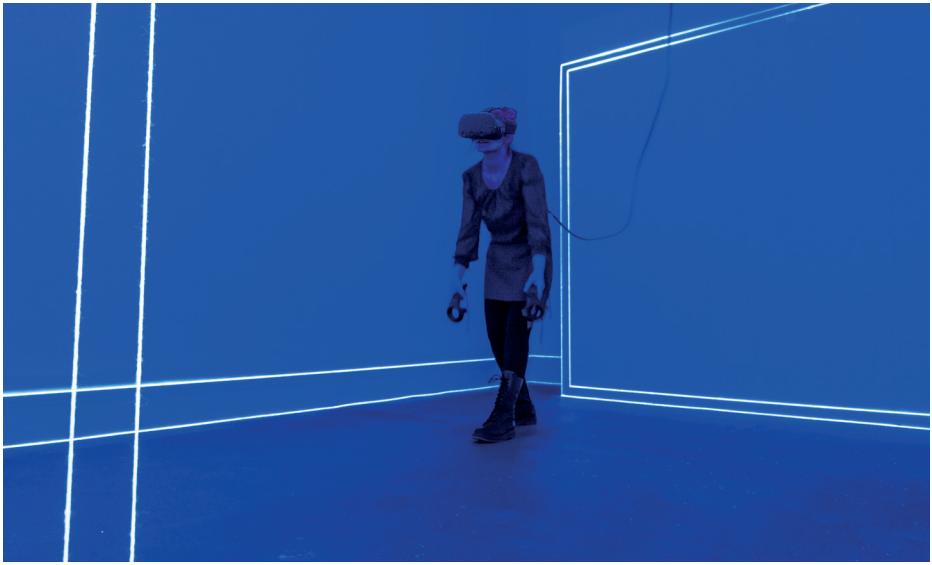
My practice is heavily dependent on the use of digital tools in the studio. I work with various free as well as paid 3D software including Blender, Unity, Reality Capture, Agisoft Metashape and WebGL applications. Blender is the primary tool used when 3D modelling objects and rendering digital simulations. Recently, I have been implementing built 3D models and photo scanned objects within the game engine Unity. This has allowed me to showcase newly developed applications to viewers in an interactive format via a VR headset. Photogrammetric software such as Reality Capture and Agisoft Metashape allow for the creation of digitized assets that are compatible with the applications I use. I also create work with a drawing machine and create pieces based off algorithmic information as well as photogrammetric collected data. Experimenting with creative coding through a pen plotter enables me to design physical work based off digital information. This allows for the creation of physical drawings of digitally captured 3D scans that consist of altered and manipulated natural environments created by computer-controlled machines. The results from these plotted designs are often experimental with the intention of creating various versions of familiar layouts within nature. Current research includes developing interactive AR and VR content for an Irish Cultural Institute over the next year and engaging with their collection. Other research is allocated to the development of algorithmic code resulting in generative designs I produce on paper. The time I allocate to this research allows me to reconsider the impact of my own practice on others and deepen my understanding of digital art as a practice along with endless processes associated with is as a medium. I aim to work on the crossover of generative and visual art with the intention of also creating physical pieces through drawing formats on paper as well as digital works including 3D simulations // VR // Installation work.



The Ground Opened Up (2017), Elaine Hoey
The National Sculpture Factory, Cork
Photo: Jedrzej Niezgoda

Rupture (2021), Elaine Hoey
Solstice Arts Centre, Navan
Photo: Jedrzej Niezgoda





Stranger Than Fiction Is Fact (2017), Elaine Hoey
MFA Exhibition, NCAD, Dublin
Photo: Zac Milofsky

The Weight of Water (2016), Elaine Hoey
RDS Visual Arts Awards, Dublin
Photo: Justyna Kielbowicz





Within Strata (2021), Elaine Hoey
Solstice Arts Centre, Navan
Photo: Jedrzej Niezgoda

The Weight of Water is an interactive virtual reality installation that appropriates new media technology to explore Europe's response to the refugee crisis in 2016. The Weight of Water asks us to act as witnesses to an unfolding humanitarian crisis. On entering the work, a female voice addresses a global you: "You prepared to join us in the shadows, but you didn't. Perhaps something in our silence stopped you. Or, perhaps, something in our shadows." The experience of the boat crossing serves as a stark reminder of how many in western society fail to recognize the horror and scale of this humanitarian crisis, a crisis from which many do not survive.

Stranger than Fiction is Fact is an interactive, virtual reality-based (VR) installation which utilizes technology to disrupt and destabilize the viewer's navigation and understanding of our current political mediascape. This work investigates the idea of fiction as a new reality, drawing parallels between technological, mediated and political systems, proposing new ways we might negotiate this uncertain terrain.

Rupture explores the nature of human behavior at times of crisis and how certain ideas or theories can trigger a collective unconscious, causing a crowd to coleses into a singular entity and mind, spreading ideas like a contagious virus. As we become increasingly connected through networks and digital interfaces these ideas grow and mutate, spilling out into the real world and begin to shape our political reality.

The Ground Opened Up is a two-part virtual reality commission by the National Sculpture Factory, Cork (2017). Part one was a documentary style VR work in which women survivors from Mother and Baby Homes spoke about their experience. Part two was an interactive VR response work that explored the political power and control exerted over women and children, under the guise of moral and religious supremacy in Ireland.

Within Strata is a three-channel video work which explores the anxiety of the body fusing with an information and technological data landscape. The work, part video, part 3d animation and experimental coding, used a coded virus patch to corrupt part of the visual language of the video work itself.

ELAINE HOEY works mainly creating interactive-based installations, appropriating contemporary digital art practices and aesthetics to explore the politics of digital humanity and our evolving relationship with the screen.

She describes her process as 'experimental', and is interested in exploring digitally native and new forms of art. Her work often addresses and critiques themes arising from identity, place, and the biopolitical body. She works through a wide variety of mediums such as virtual reality, Artificial Intelligence (AI) systems, programming, video, installation, and live remote cyber performance.

Recent exhibitions include Bone Of What Absent Thing, Living Canvas, Wilton Park (2022-2023); Prosthetic Knowledge, The Glucksman (2022); Screentime, SilentGreen, Berlin (2022). Previous exhibitions include MIMESIS, Solstice Art Center Navan (2021); Desire; A Revision from the 20th Century to the Digital Age, Irish Museum of Modern Art Dublin (2019-2020); Unflattering, The National Museum of Modern and Contemporary Art, Seoul, South Korea (2020); Citizen Nowhere Citizen Somewhere,The Crawford Gallery, Cork (2020); FILE SP Fiesp Cultural Centre, São Paulo, Brazil (2019); The Dictionary of Evil, Gangwon International Biennale, South Korea (2018); Design and Violence, MOMA and Science Gallery (2016-17); Dublin Futures, The RHA, Dublin (2017); Turbulence, The Model Sligo (2018); Oracle,Scena9. Bucharest (2018); Open Codes, ZKM Karlsruhe, Germany(2018); Surface Tension,Centre Culturel Irlandais, Paris (2018); This is not Architecture (2017), Highlanes, Drogheda; The Ground Opened Up, The National Sculpture Factory, Cork (2017).

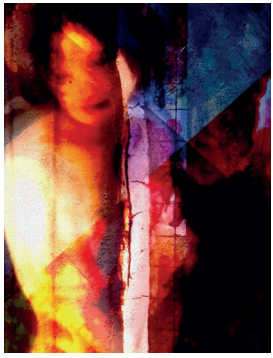
Elaine is a recipient of the Taylor Art Award, the R.C. Lewis-Crosby Award, and the CCI Residency Award from the RDS Visual Arts Awards. She is a part-time lecturer in Fine Art Media at the National College of Art and Design in Dublin.

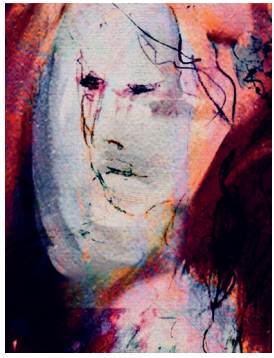
Joseph Feller

A selection of artworks
from instagram.com/joseph_feller

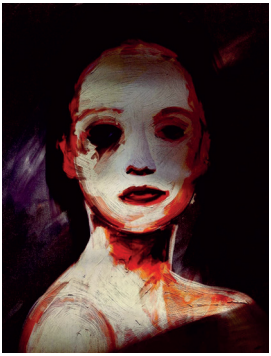
Most of the artist's digital pieces are collages, made up of 5-10 digital layers of drawings, paintings, and photographs. The core image might be a digital photograph of a physical drawing or painting, or a "native" digital drawing or painting. Using an app on a tablet (or sometimes phone), this core image is layered and blended with other images: with digitally transformed versions of itself, or with other drawings or paintings.

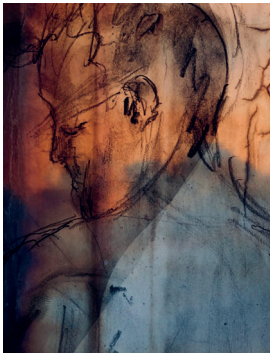
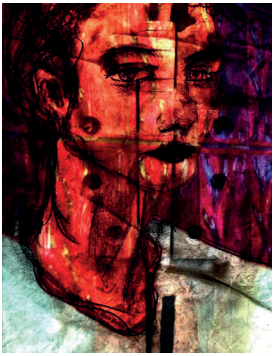
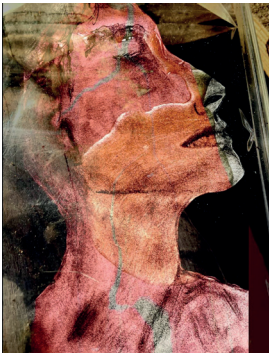






JOSEPH FELLER is Professor of Information Systems and Digital Transformation at University College Cork, where he co-directs the BSC in Business Information Systems degree programme. Before joining the UCC academic faculty in 1999, he taught social science and cultural studies for three years at the Ringling College of Art and Design, Sarasota, Florida. His research focuses on open production and open culture phenomena, and on the use of games as contexts and tools for learning, exploration, and innovation. He has published several books and over 200 articles. Joseph is a self-taught artist, who began painting and drawing at the age of 40. He primarily creates portraiture and figurative images using digital collaging techniques.

Cailean Finn



Online Persona (2021), Cailean Finn

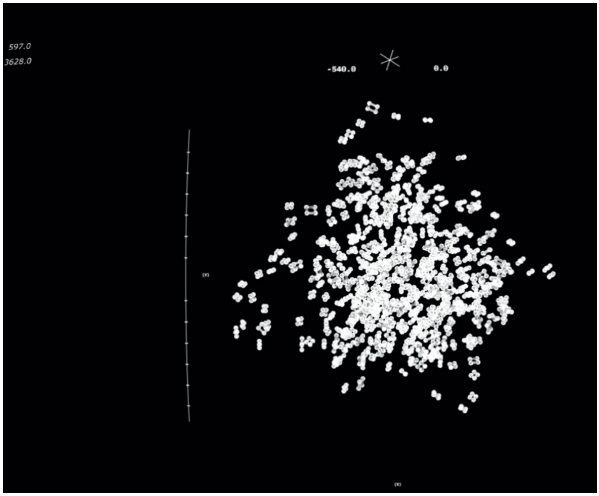
The portraits produced as part of Online Persona were created using StyleGAN, a type of General Adversarial Network introduced by Nvidia in 2018. This type of deep learning algorithm is commonly used for human image synthesis, predominantly working with the human face.

For this work, images which consisted of portraits were collected from an online browsing session to create a dataset of 'recognised' human faces using facial recognition tools. The final dataset produced was trained on a larger pre-trained model using a technique called 'transfer learning'. By utilising this technique, the StyleGAN model begins to learn how to reproduce images which are visually/ structurally similar to images found in the custom dataset. Once the model has completed training, novel images can be created by exploring the 'latent space' - a high dimensional vectorised space which represents the models understanding of the dataset.

Online Persona is a result of multiple days of

training and fine-tuning, creating a model which produces uncanny avatars. Ultimately, the generated output reflects how the algorithm represents and understands the custom dataset.

Online Persona visualises how media can shape our perception of ourselves, and other individuals; bringing attention to ways in which we consume media online, and its signifigant influence on our relationships and environment.



Latent Mirror (2022)
Cailean Finn & Evan Miles

A still captured during the audio-visual performance of Latent Mirror. The performance was created in response to the Portraits, People, & Place exhibition at the Waterford Gallery of Art in 2022. The performance explored the role portraits possess in the digital age, and how our perception of the 'subject' or 'sitter' has in some ways changed to facilitate virtual

interactions. This performance was a collaboration between sound artist and producer Evan Miles, and creative technologist Cailean Finn. The performance was a combination of two primary visual elements.

The first element, shown in the previous image, is a three-dimensional network of nodes which were mapped to a dataset of images containing a collection of portraits. The spherical structure was augmented in real-time during the performance.

The second element of the performance utilised machine learning models to capture the facial structure of the performing sound artist in order to construct a DeepFake which operated in real-time. This was done in an attempt to deconstruct, isolate, and as a result highlight compositional elements of the 'subject'.

The performance was created using TouchDesigner and external Python libraries for machine learning. The aim of the work was to understand what meaning has been lost or gained during our digital conversion, and in what ways can we reimagine our digital identity through sound, and video.

CAILEAN FINN is a Creative Technologist and New Media Artist from Waterford. In his work, Cailean explores digital systems, and their underlying structure. In this approach, he attempts to reveal and provide insight into how contemporary technologies that shape our environment function. Currently, Cailean's practice is focused around exploring artificial intelligence, machine learning and computer vision algorithms. Through these tools, he hopes to reflect on the relationship we have formed with

machines, and how it can be (re)defined moving forward. In doing so, Cailean searches for new modalities of collaboration with machines, which is underpinned by the evolutionary processes we share. Cailean graduated in 2019 with a B.Sc. in Computers Systems from the University of Limerick, and stayed on to pursue a masters degree in Art and Technology. His Masters dissertation, *The Electronic Image: An Object of Time and Energy*, explored the inherent characteristic of the video signal and the virtualisation of analog processes.

Practitioner Reflection

Cailean Finn

My artistic practice has been constantly in flux since I began my Masters in 2020. When starting my Masters, I never considered what my artistic practice was, as I didn't consciously think of having one. However, my initial interest was in Computer Science, and it drove me to pursue a career as a Creative Technologist and New Media Artist. I always had an affinity for discovering new technologies, learning all I could about them, and as a by-product, solving complex technical problems that emerged during this process. This approach subsequently became an aspect of my artistic practice, shifting from one emerging technology to another within the digital domain. From this approach, I strive to transform my research and knowledge into a work that others can experience and learn from. My aim is to accentuate the underlying structure of complex systems by deconstructing hidden processes that are imperative to its operation. From this, I began to explore the relationship we have with machines, and how it has developed as a result of accelerated technological advancement.

I experimented with a wide array of technologies during 2020-21, becoming familiar with the tools creative practitioners working at the intersection of Art Technology commonly used. I enjoyed designing generative visual systems through visual and non-visual coding languages such as MAX/MSP, and Processing. During this period I also discovered a select few artists exploring Artificial Intelligence and Machine Learning such as Mario Klingemann, and Sougwen Chung. From their work, the possibilities for artistic collaboration with machines seemed endless, and I began to learn more about this emerging field. At that time, the tools were cumbersome, and I dedicated a large portion of my time and research to understanding how they operated. More recently, Artificial Intelligence and Machine learning have taken precedence in my practise as a technologist and artist.

After moving to the Hague in 2022 to work as a Machine Learning technician for Soyun Park at her community-based studio RGBdog, I began collaborating with other artists and creative technologists on larger scale works. Through my exposure to the process of others, I became more critical of my artistic practice. From then on, my practice became more defined; The majority of my time was spent exploring the vast and rapidly changing landscape of Artificial Intelligence, creating small prototypes from newly released state-of-the-art models.

What excites me the most about this field in particular is the idea of 'non-human intelligence', and the discussion that arises around what intelligence is, or if it is even unique to humans at all? As we share many similarities in the way we process information, and make predictions about the world around us. Recently, my works deal with this topic in a large capacity. In my work, I hope to discover and draw parallels between human and non-human intelligence - creating a symbiosis which attempts to humanise the machine through a non anthropocentric lens.

This interest and approach has become even more prominent in my work, as I have begun to experiment with reinforcement learning - a branch of Deep Learning associated with teaching smart agents to interact and learn from its actions in a virtual(or non-virtual) environment. This study into reinforcement learning has become the main focus of my practice since late 2022. This field is complex and has yet to be fully mapped out, but the technology aligns directly with concerns around 'intelligence' in my work.

Through this process, I also hope to promote discourse around intelligence, artificial life and evolution. As the prevalence of machine learning and artificial intelligence becomes ubiquitous across every ecology, I believe it is important to have open discussions about the cultural, technological and aesthetical implications of this technology. For this reason, I wish to create experiences where the viewer can discover a relationship with the virtual creature or artificial intelligence through similarities rooted in evolutionary processes.

DIGITAL ART & SOCIAL INCLUSION

MARY GALVIN

Understanding 'inclusion' requires, first, an understanding of exclusion - what it feels like to be left behind, unheard or unseen by society. The acronym EDI (equality, diversity and inclusion) is now commonplace in our daily dialogue, but to what end? EDI stands for inclusion, but the discussions and debates which surround it usually involve only those who are already included. And so inclusion itself can be inherently exclusionary. It is difficult to see how true social inclusion can be achieved when those who are socially included will never be comfortable sharing their products and services in a way that might impact their own consumption and use of such. Furthermore, the making and creation of these products and services is also largely in the hands of the socially included. Art is no exception.

Art, some might argue, should be accessible to everyone. But just as it is with health, housing, and education, the production and consumption of art in Ireland is less accessible to the excluded than it is the included. How can any art be socially engaged if that engagement fails to include members of the travelling community; people in sheltered housing, non-standard living arrangements, addiction and homeless services; mental health services; direct provision centres; and prisons and detention camps? Art can only be inclusive when all people have equal access to artistic activities.

MARY GALVIN is Head of Department of Applied Social Studies at Munster Technological University.

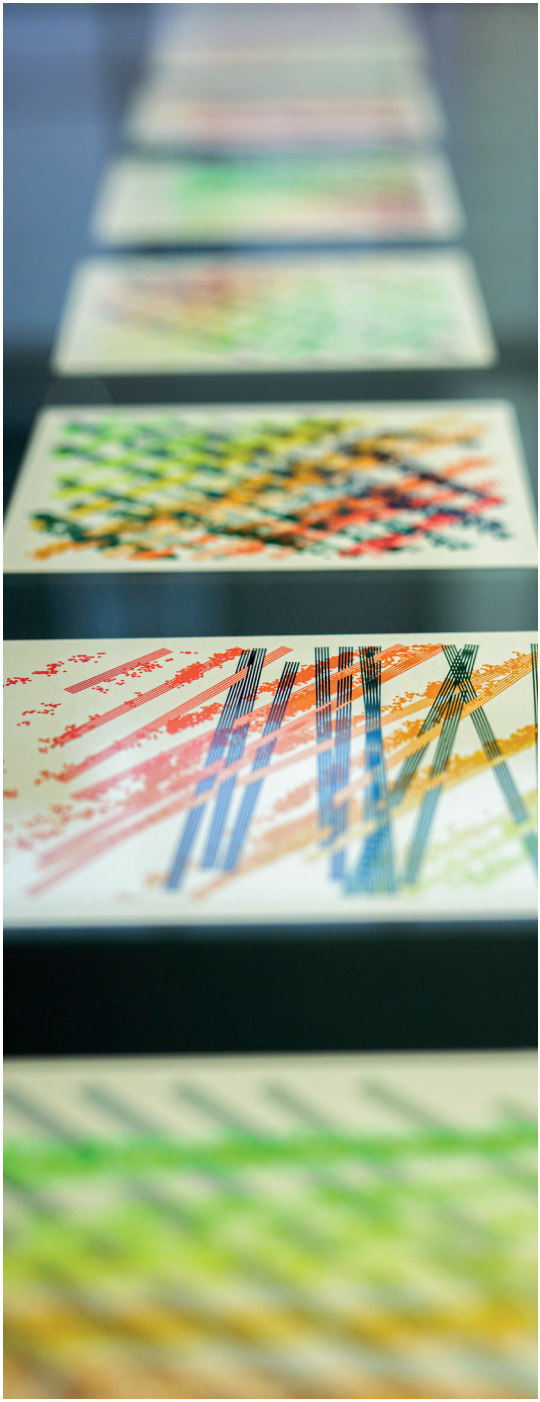
In 2021, the National Economic and Social Council's Digital Inclusion in Ireland Council Report stated that certain groups still remain poorly engaged within online services, including those who are older, have lower levels of education, lower incomes, and live in rural areas.[1] This variation is referred to as the "digital divide" and for digital art to remain inclusive, this divide must be addressed. Otherwise, digital art, just as it has been with its predecessors, will continue to leave people behind.

But the digital can bring an inclusive potential to art, it has the potential to make art more accessible for creators and consumers, it can make art more social in both process and outcome. The digital promises new ways to create art, ways which can accommodate artists living with disabilities, ways which might democratise access to materials and techniques. And for artists and publics who cannot access traditional - exclusionary - communities and networks, the digital brings pathways to dissemination and access. For all it has divided us, equity might still be built through the digital.

There is effort required to be socially inclusive, and this effort needs to be sustained to bring about change. This can be uncomfortable, perhaps even tiresome for those who roll their eyes in response to performed 'wokeness'. But art has power and the digital is all consuming, so digital art and its artists must take a moment to address the matter of inclusion. Digital art can be inclusive in a myriad of ways not possible to other forms. But the digital also has the potential to further exclude, to enable new kinds of work but by the same people.

1. National Economic & Social Council (2021), *Digital Inclusion in Ireland: Connectivity, Devices & Skills*, nesc.ie/publications/digital-inclusion-in-ireland-connectivity-devices-skills/

Mícheál Ó Catháin

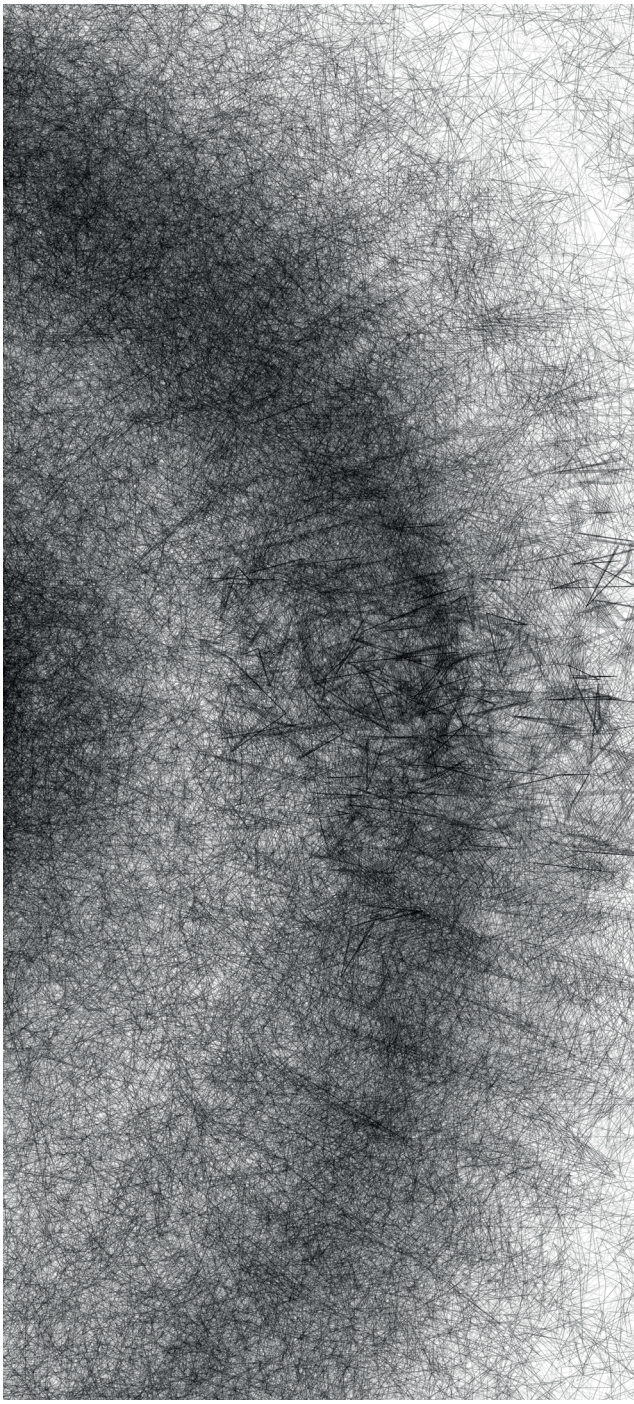


"Fearn" series, Micheál Ó Catháin

Exhibited as part of Lúthchleasa [lu:hxl'æsə], Galway Arts Centre, Dec 2021

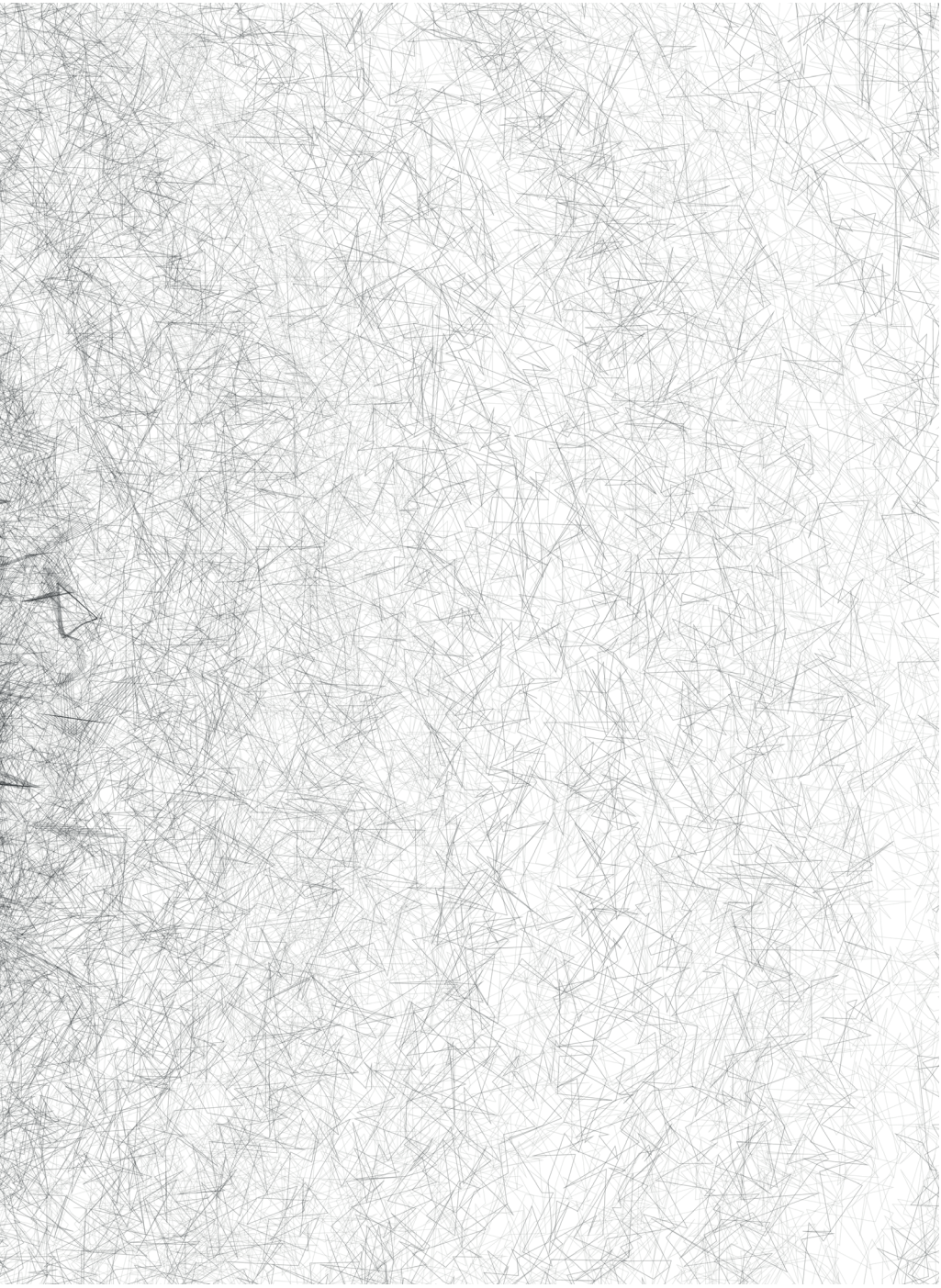
Photography by Tom Flanagan





Malairt Phonch Aniar (2021)
Mícheál Ó Catháin

Part of the Luis series



Practitioner Reflection

Mícheál Ó Catháin

Singing is at the centre of my artistic practice. Orbiting this centre is the music of the early Gaelic harp. As a multimedia artist I integrate fine-art digital prints, audiovisual installation and live performance to connect outwards from this centre with contemporary audiences. Creating both online and in-real-life (IRL) experiences rooted in the oral traditions I have inherited, I engage the emotions of today's viewers in order to make heart-felt connections with my subject matter, the harmonic nature of singing with harp. I want my audiences to have a visceral, kinesthetic response to my work—only afterwards realising it was made using computer code.

I consider the singing human larynx as an original, primal, embodied technology with infinite possibilities of movement, sensitively influencing the flow of breath and making it audible through resonance. I make connections between singing and the technology we make—ancient carbon-based technology like the early Gaelic harp and newly emerging silicon-based digital "Web 3.0" technologies built on the blockchain concept. For me the very old and the very new are similarly fertile creative spaces in the global village, folding onto each other from opposite ends of the same spectrum.

I don't gravitate towards academic study of early Gaelic harp music. Instead, I take an experimental approach, curating experiences of resonance using my own voice and body in collaboration with my harp, and a range of multimedia technologies. I have come to understand that my approach needs to be iterative, improvisational and curious.

Generative art has an established place in art history, pioneered in contemporary settings by such artists as Vera Molnar (visual art) and John Cage (music composition). The early careers of these artists were in the pre-computer era, when their rule-based algorithms, incorporating chance procedures, were implemented with traditional art forms such as the painted canvas and the orchestra. Nowadays generative art is enjoying a renaissance, created by artists using modern computer languages and presented using a cornucopia of both mature technologies of ever-increasing fidelity (such as inkjet printers and multi-channel audio speakers), as well as newer internet-enabled fixed and mobile devices (such as 8K+ smart displays, and smart phones/tablets). Happily, established and emerging digital media such as these are ideal playgrounds for generative artists like myself to make and share work, as their evolving designs increasingly afford combined visual and musical forms, and also since these media reach a global audience via the internet browser.

During a 2017/2018 Irish Arts Council bursary I began painting my emotional response to early Gaelic harp music encoded in the Bunting manuscripts (an example of an early Gaelic harp familiar to most Irish people is the Trinity harp stamped on our coins). Since I have a strong engineering background, I subsequently combined this physical artwork with creative coding. I chose the internet browser as my primary medium after researching a broad range of computer languages over the course of 2020 and 2021. My "virtual studio" ecosystem now comprises a text editor called Emacs, code written in a computer language called ClojureScript, with an internet browser window open on my screen rendering audiovisual outputs from my code as it evolves. Working in this way I have come to realise how well suited to my process are physical exhibitions and solo harp/voice concerts. This realisation landed when I demonstrated to myself that I can render to high-resolution, and then print, the art I make in and for the browser. I access the best of both worlds—the reach and facility of the browser, with the warmth, texture and visual fidelity of fine-art prints. As well as exhibitions and performances, I find inspiration in sharing work in progress with like-minded artists. This is typical of many generative artists who regularly share work in progress, as do I, on a variety of social media platforms.

I am drawn to the subject of musical resonance because it is a

universal human experience which finds regional and personal expression. This has led me to think about whether the visual art on the Trinity harp—which incorporates circular motifs, Celtic knot-work, gemstones and overlaid lozenges—expresses similar ideas to those represented by the music the harp is designed to play. In my Lúthchleasa [lu:hxl'æsə] show I explore this thought with abstract visual forms and sound samples.

I am investigating my belief that there is a link between the resonating patterns expressed in early Gaelic art and harp music. I believe these patterns are structured on geometric rules, with variation from the rules an idiomatic feature which may be evoked using mathematical randomness. I don't consider the music collected by Bunting to be a static unchanging set of relics. Creating his manuscripts, Bunting did an outstanding job preserving the old harp music as he did, with a rich trail of clues as to how his Western classical music interpretation could be reverse filtered. However, if the medium is the message, then the message of a manuscript is that what it contains is unchanging, frozen. Intuitively I don't believe this to be true of early Gaelic harp music. Thankfully, new digital audiovisual media help us to do justice to the expression of this inherently oral tradition on its own terms. I am convinced the musical ideas contained in the Bunting manuscripts, and other related archival collections, represent datapoints in a rich and dynamic spectrum of possibilities. In my Lúthchleasa [lu:hxl'æsə] collection, I contemplate this spectrum by coding simple rules which overlay and interact, combining primitive geometric shapes and randomness to generate complex, emergent visuals and music.

To me, my Lúthchleasa [lu:hxl'æsə] collection represents a mindfully curated attention echo-chamber, appropriating the latest emerging technology to amplify for myself and for audiences the ideas of resonance as represented in early Gaelic harp music and art. In the process of creating my exhibition of this collection at Galway Arts Centre, most ideas crystalised as I hoped. Others proved too ambitious in the timescales available, and so form the seeds for future work!

MÍCHEÁL Ó CATHÁIN is a multimedia artist working primarily with performance (early Gaelic harp and voice), computer code, installation. Faithful to historical practices, Mícheál sings with the harp on his left shoulder and employs specialised fingernail techniques (which he terms "lúthchleasa", Gaelic for athletics) to shape the resonance of these metal-strung instruments. His decades-long grounding in "sean-nós" (old-style) singing guides his arrangements of Bunting manuscript pieces, breathing fresh life into Ireland's ancient harp music for contemporary audiences.

Mícheál also works as an engineer in offshore renewables. He devotes two of five days in his working week to his practice of singing with the early Gaelic harp and related generative art. The crossover between Mícheál's parallel artistic and engineering careers find expression in the audiovisual exhibitions and live shows he creates, including the digital artwork shown here.

Living in Youghal, Co. Cork, Mícheál has been a recipient of Irish Arts Council Agility (2021), Traditional Arts Bursary (2017) and Deis Recording & Publication (2017) awards. He has performed solo harp & voice concerts at Achill International Harp Festival and Scoil na gCláirseach Festival of Early Irish Harp, and his generative art has been exhibited at Naas Art & Culture Centre, Galway Arts Centre, and the Lord Mayor's Pavilion in Cork City.

See his website at michealocathain.com



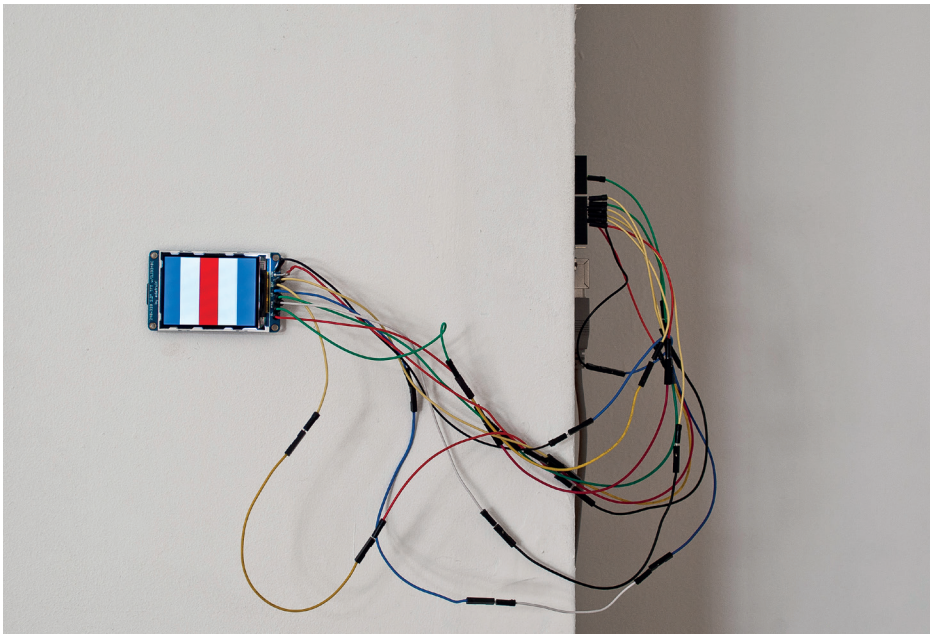
Dublin Ships installation, Scherzer Bridges, Dublin (2015)
Cliona Harmey
Photography: Ros Kavanagh



Dublin Ships installation, Scherzer Bridges, Dublin (2015)
Cliona Harmey
Photography: Ros Kavanagh

Dublin Ships was generated using a live electronic marine information system using AIS (Automatic Identification System) technology. AIS enables the tracking of the location of ships. The names of the most recently arrived and departed ships from Dublin Port were output to two large LED screens sited at the Scherzer Bridges at North Wall Quay beside the Samuel Beckett Bridge. The artwork was aimed at a broad audience and was designed to be seen by commuters and pedestrians over an extended period.

Dublin Ships was commissioned by Dublin City Council as part of the Dublin City Public Art Programme – Strand 2 – Interaction with the City, under the Per Cent for Art Scheme with funding from the Department of the Environment, Community and Local Government and in partnership with Dublin Port Company and the Dublin Docklands Development Authority. Curated by Ruairí Ó Cuív with additional support from Niamh O'Doherty at Dublin City Public Art Programme. The work was programmed by Ruadhán O'Donoghue with signage and engineering by Przemek Gorzelanczyk.



Flag (2014), Cliona Harmey
Photography: Emma Haugh

The small sculpture “Flag” uses the diy electronics system arduino with a small TFT screen which is reminiscent of a brightly coloured mobile phone screen. This spells out the ship name Ocean Shield using the maritime flag alphabet. Ocean Shield was one of the ships seeking the missing flight MH370 which disappeared during the time of production. The bitmaps used for the animation were based on images remixed from files created by user Denelson 83 on Wikipedia Commons.



Mask (2014), Cliona Harmey
Photography: Emma Haugh

A miniature CCTV camera is focused through a bellows on two combined analogue photography masks. These masks would have been used to mask areas of the image in order to allow for double exposures and image combinations in a pre-photoshop world. The image the CCTV camera captures is projected on the wall, it mimics an eclipse and is subtly interrupted whenever a person enters the room.

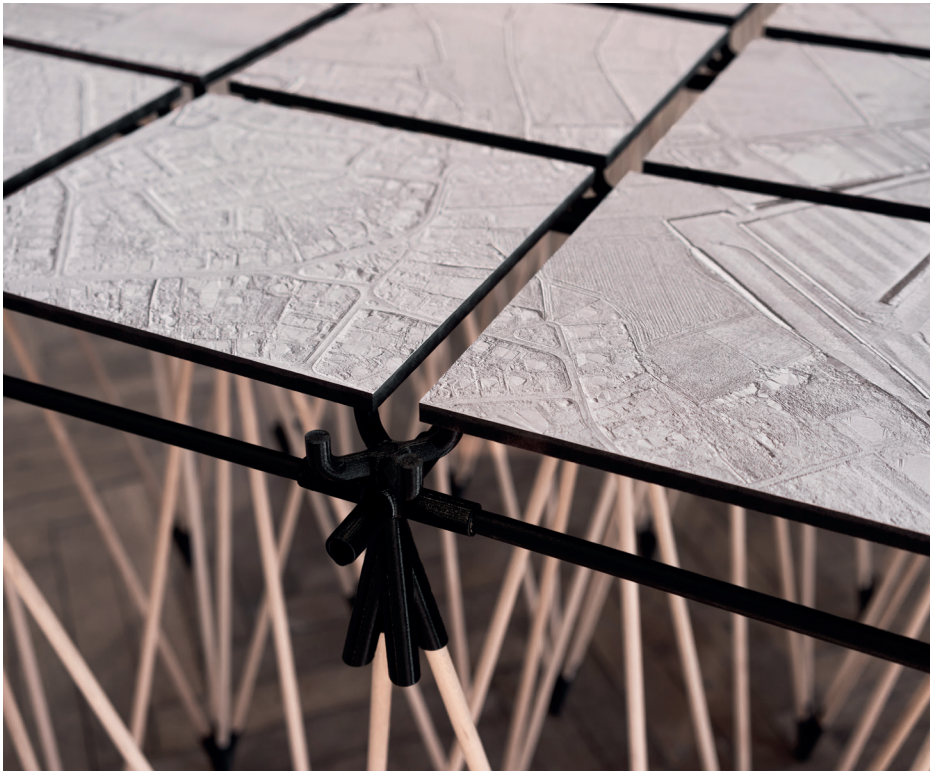
berte & harmey

berte & harmey is an occasional artist duo formed by Cliona Harmey and Filip Berte to share research and to explore ideas around spatial politics, critical geography, historical legacies and sociotechnical systems of exclusion and inclusion. berte & harmey have shown their work as part of Tulca 2022 (Galway), at Hugh Lane Gallery (Open House Dublin 2022), NCAD Gallery (Dublin), and Blanco (Ghent).



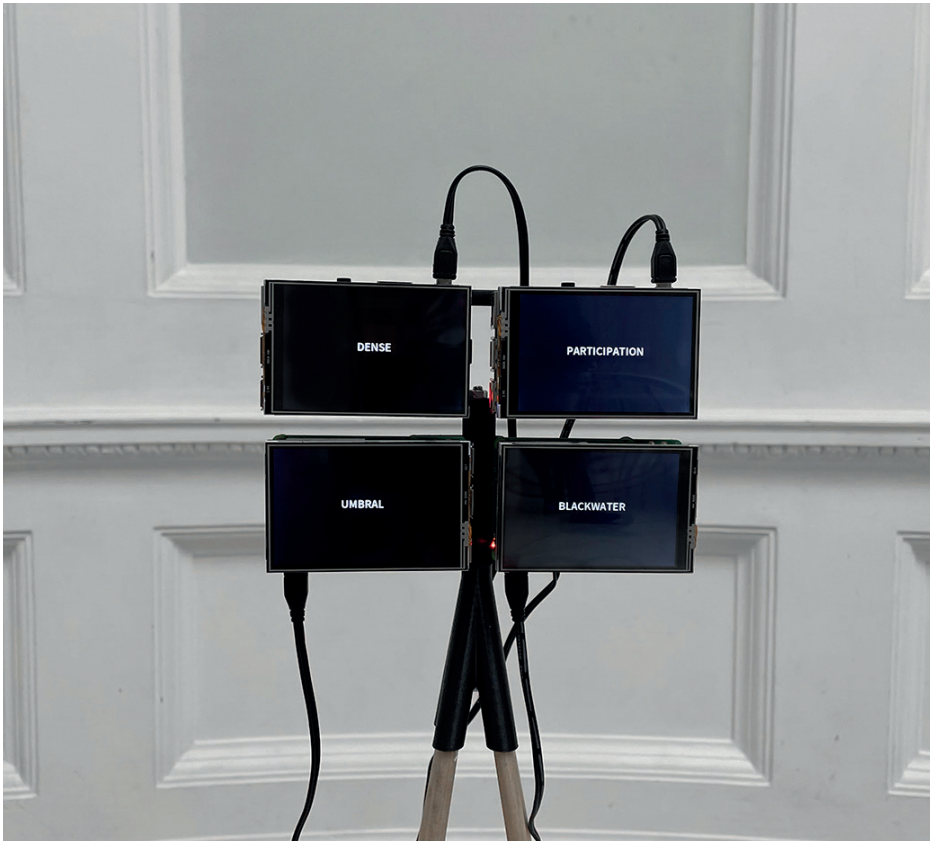
Bare Map BMg (2020)
berte & harmey

at BLANCO Ghent,
funded by Culture Ireland



Nul Punt Wolk, detail of Bare Map BMg (2020)
berte & harmey

Nul Punt Wolk - which means "zero point cloud" in Dutch - refers to the aerial LiDAR point cloud data, which the artists used to generate their first collaborative series of works called Bare Maps. LiDAR is a sensing technology that uses pulses of laser light to measure distances to Earth which are then processed into point cloud data. The physical printed maps which berte & harmey have created with this data show the earth stripped back to its underlying terrain. Bare of buildings and vegetation, the landscape retains trace outlines of buildings as well as routes, 'desire lines', patterns of land use and areas of enclosure. The Bare Maps also include locations which are contested and the landscape sometimes reveals traces of friction, points of forced enclosure, containment, exclusion and logistics. berte & harmey designed their project to be used at different locations in order to foster interdisciplinary dialogue and discussion.



Glossa BMd1 (2022)
berte & harmey

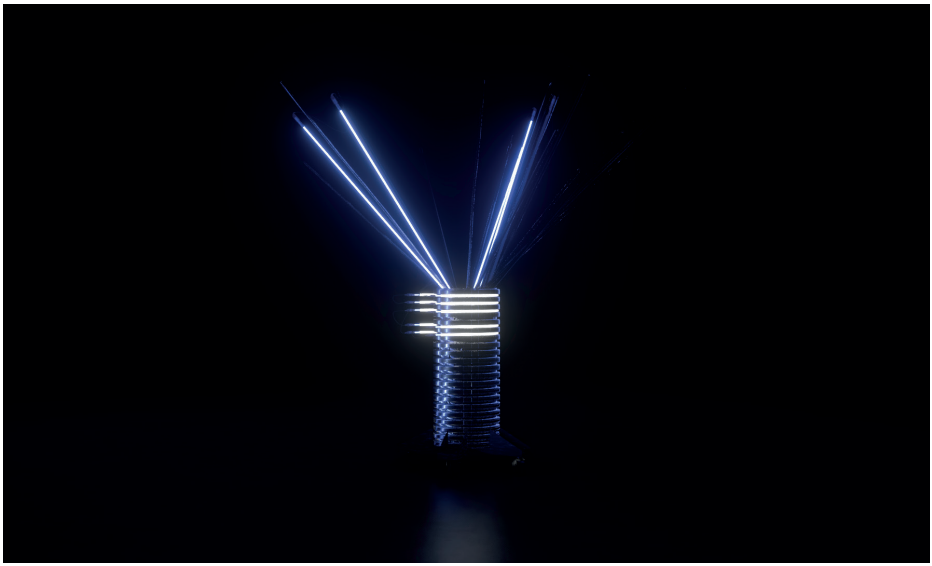
Glossa is a small-scale system displaying words. The words are gleaned by extracting frequent words from official reports and juxtaposing them with words generated through dialogue, audience discussion, and experiential engagement. The work is displayed on screens which are attached to Raspberry Pi computers. The software developed for the Glossa display is written in Processing; the pre-text processing uses the Natural Language Toolkit library in Python. The custom 3D printed parts which hold the screen were created by Frank Prendergast of Space Forms, Dublin. Both Glossa and the Bare Map BMd1 were shown as part of Open House Dublin 2022 at Hugh Lane Gallery, Dublin.

CLIONA HARMEY works primarily with technology subtly exploring the politics inherent in both contemporary and historical socio-technical systems using material exploration and hands-on artistic practice to try to understand /reveal their materiality and logic. She is interested in different ways of making immaterial and mutable data tangible and the inscription processes of its capture and production. Cliona is a member of OMG, a research group that works in critical and creative relation/tension with technology. Cliona has a BA in Sculpture (NCAD), HDIP Computer Science (UCD), and an MA in Visual Practices (IADT).Specific areas of interest for her include : communication technologies, infrastructure, sculpture, electronics, artists' engagements with technology, public art / audience engagement. In 1999 Cliona did a year-long artistic residency at Arthouse Dublin then one of the first multimedia centres in Europe.Cliona works at a variety of scales from large-scale public art (Dublin Ships 2015) to moving image and system based works for gallery (Troposphere, Block and Receive) and off-site exhibition.

FILIP BERTE explores space from multiple perspectives, looking at issues such as migration, visibility, liminality, and the concept of borders. A critical engagement is integral to his interdisciplinary and process-oriented art practice. From 2006-2013, Berte worked on a comprehensive visual research project Eutopia using an architectural form to explore the sociopolitical aspects of contemporary Europe. In 2015 against the backdrop of the unprecedented refugee and migrant crisis he began a long-term project Un-Home / Moving Stones (2015-2020) which focused on the mechanisms of inclusion and exclusion of "newcomers" to western societies. Within his artistic practice in general Berte takes a position in the background of this increasingly polarised landscape, trying to offer an integer and poetic form of resistance, creating a momentum from an in-between position. He considers his role as an artist as the one of a mediator, tackling questions of hospitality, polarisation, (dis-)integration, observation, surveillance, control, distance, (human) proximity, (in-)visibility, physical exposure and the passage of time. In 2011, Berte won the East Flanders' Visual Arts Prize for his multidisciplinary body of work Eutopia. Berte lives and works in Ghent. He holds a master degree in Architecture (LUCA School of Arts, Ghent). He also studied Painting at the Academy of Fine Arts in Ghent.

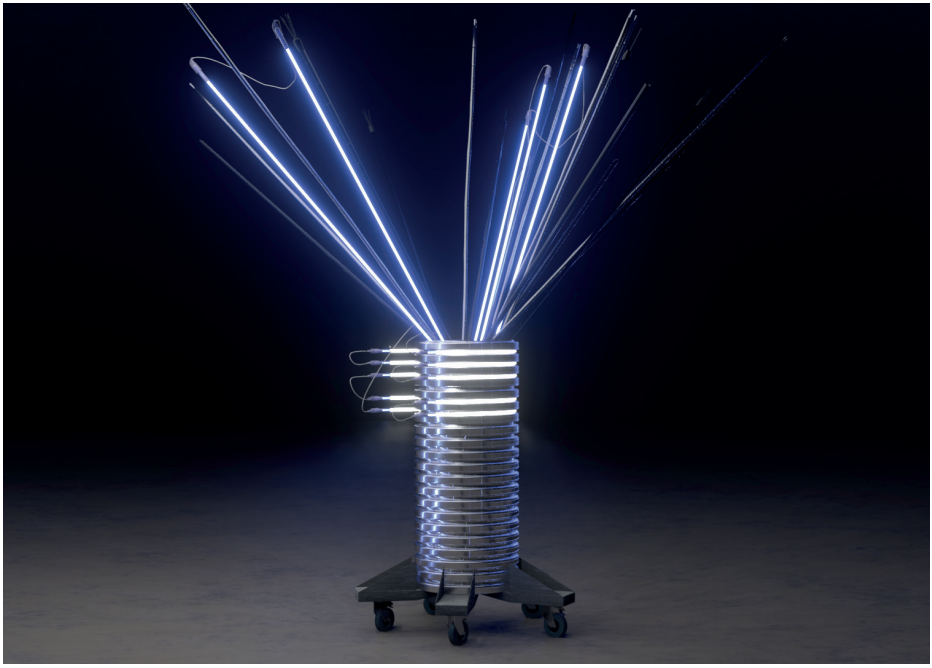
Mark Cullen





Portrait of an Artist as a Transhumanist (PAT), 2021, digital model and animation of existing physical sculpture Mark Cullen

Developed with the assistance of an Arts Council Agility Award



Portrait of the Artist as a Transhumanist (PAT) is a new experimental sculpture that exists as a physical sculpture and here as a still of digital animated model.

The work developed from hands-on sculptural exploration with combinations of materials and processes in new modular arrangements with the resulting sculptural entity rendered to scale as a digital object by Tadhg Ó Cuirrín with a commissioned soundtrack by composer Tadhg Kinsella. The soundtrack incorporated original vocal recordings in the 'lung' of Biosphere 2, Arizona, USA and the Barrel Gallery of the HDLU, Zagreb, Croatia.

A Portrait of the Artist as a Transhumanist (PAT) is concerned with emergent digital/biological systems and subjectivity specifically as it pertains to mind emulation and the deconstructed/dematerialised body. Mind emulation is the theoretical futuristic process of scanning a physical structure of the brain accurately enough to create an emulation of the mental state (including long-term memory and "self") and transferring or copying it to a computer in a digital form.

PAT explores the proposition that 'the body' of the artist has the potential, in the future, to be the ultimate artform. Mind emulated consciousness existing as data and algorithms frees the personal entity from existing in flesh, opening up the potential for any plastic form to be used as a substrate to run the mind identity. The body becomes the ultimate expression of the creative act or the pinnacle of nihilist gestures.

In PAT's case the body has transformed into a shape that visually chimes with cryogenic tanks used in Alcor, a cryogenic storage facility in Arizona visited by the artist, whilst having a nod to the extremophile tube worms that inhabit the most challenging places to live on earth at the edges of deep sea ocean vents under extreme conditions of heat and pressure – the ultimate terraforming beings.



Metal Slug Seer (MSS) & YURT, 2022, digital models and animation of physical sculptures that were shown together in the Mestrovic Pavilion, HDLU, Zagreb, Croatia, 2018 as part of Difference Engine XI – Altern-ator funded by Culture Ireland

YURT is a mobile temple where oblique rites are carried out concerning transhuman techno-immortality. YURT is imagined as a temporary gathering place for a vertically elite society – a temple and a star gate, presided over by the machinic slave entity – Metal Slug Seer – who acts as a priestly master of ceremonies.

Metal Slug Seer is sculptural entity as seer for a technocratic transhumanist elite who seek to break with 'deathist' philosophies that acquiesce to finite

human lifespans. The Metal Slug Seer is a totemic cypher in the guise of a misshapen member of a biomorphic underclass, created in servitude to an undying transhumanist elite. The shadow side of technology and where civilisation is being led by an untouchable technocratic elite is signalled with this metaphorical cyborg.

Original physical sculptures were used as the basis for these digital models and animations rendered by Tadhg Ó Cuirrín, with a soundtrack composed by Tadhg Kinsella. Original vocals recorded in Biosphere 2, Arizona, USA and HDLU, Zagreb, Croatia. Vocals by Mark Cullen and Gillian Lawler.
First manifestation HDLU, Zagreb, Croatia 2018, second and third manifestations separately, Tulca, Galway, Ireland; and ARTWORKS 2019: Dearly Beloved, VISUAL, Carlow, 2019.

MARK CULLEN is an Irish artist with an international practice working across disciplines with various media. His artwork explores posthuman subjectivity, re-imagining how the world will exist and humans relationship to it. He has won multiple Arts Council Bursary/Project/Travel Awards, Culture Ireland Grants and was an award winner at EV+A 2005. He is the co-editor of Artist-Run Europe Practice/Projects/Spaces, published in June, 2016. He is collected by OPW, Ireland; Chamber of Commerce, Hefei, China, and private collections. Since 2009 he has been a member of Difference Engine, a self-determined art group which instigates an evolving exhibition methodology, a model of self organisation, with artists Wendy Judge, Gillian Lawler and Jessica Foley, featuring Gordon Cheung, Paul Green and other collaborators. Difference Engine have shown in Ireland, New York, Wales, Rotterdam, Croatia and Dublin. He was an international representative for the Visual Artists Ireland from 2005-2007, attending the World Summit on Arts and Culture, IFACCA, Newcastle, and the International Artists Association General Assembly, Beijing. In 2005 he completed a Masters in Visual Arts Practices at IADT and was an award winner at EV+A 2005. In 2007 he attended a residency at El Levante in Rosario and at CASLEO Observatory, Argentina. Cullen was curator of Darklight Digital Film Festival from 1999-2004. In 1996 he was the co-founding partner of Pallas Projects/Studios, Dublin and continues to direct and curate for this organisation. Pallas through their various guises and programmes have been key exponents of experimental art practice in Dublin and advocates for artist-run practice in Europe. He was Artist-in-Residence at the School of Physics, University College Dublin, 2013/14 , and exhibited Mandala: As within so without, at the O'Brien Science Centre, UCD. His works and full biography can be found at www.markcullen.org.

WHAT DIGITAL ANGST REVEALS

ROBIN PARMAR

What is digital angst?

> Digital angst is a feeling of unease, anxiety, or frustration caused by the use or misuse of digital technology. This can include feeling overwhelmed or dependent on technology, having an addiction to social media, worrying about privacy and security, feeling isolated or disconnected from others, or struggling with the constant stream of information and distractions. Digital angst can also refer to the stress and pressure individuals may feel to keep up with the rapid pace of technological change and advancements. This anxiety can impact an individual's ability to benefit from and enjoy digital technologies.

ChatGPT, the artificial intelligence (AI) chatbot, wrote that paragraph. Given that it is itself a technological product, it is perhaps not surprising that it assumes humanity should "benefit from and enjoy digital technologies." There's a self-fulfilling teleology here that channels the techno-optimism of those who coded ChatGPT, creating the vast database of tagged and cross-referenced facts now termed a "knowledge base." Does the potential of this engine to write college papers, script films, and compose songs make you feel "negative emotions such as stress, depression, and isolation?" ChatGPT thought it might.

This essay will explore digital angst by surveying technologies that highlight the diverse domains (politics, economics, ethics) in which this emotive force operates. Then the focus

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will narrow to ontological and phenomenological concerns, using specific examples from digital music.

Visual art and digital angst

There are distinct differences in how we react to images we know to be analogue, produced by photochemical processes, and those we know to be produced by digital processes. The analogue image is seen as closer to human, because it admits the possibility of flaws. By contrast, a digital rendering is a product of the machinic realm, perfect in every copy.

For film directors such as Christopher Nolan, the fact that a feature was shot on optical film is an important part of the aesthetic. Speaking about the novel monochrome IMAX process developed for Oppenheimer (2023), Nolan said: "I saw the first tests come in, we just knew that this was a format that we were immediately in love with." Here the desired image is not described qualitatively, but only in terms of the emotive affect. This is typical of appeals to the analogue domain; they are not necessarily based on any substantive characteristic of the medium, but rather on our affect.

Nonetheless, photographic film does has a key material characteristic, the non-uniformity of the density of silver halide known as *grain*. This texture invites a tactile response to this visual medium, problematising our ability to smoothly read the image. The very fact that digital images make things "easy" distances them from characteristics we associate with artistic endeavour which, at least in the Romantic view, involves struggle and interpretation. Intriguingly, we don't necessarily need to see the grain to experience the texture. Ontology has a bearing on phenomenology because our understandings of material and structure informs how we perceive that medium, how we react to it both intellectually and emotionally.

In the last four years, images synthesised by neural net software such as Artbreeder and StyleGAN have become indistinguishable from those created by painters, photographers, and other visual artists. The computational method behind this controversial practice is named, appropriately enough for the current discussion, a Generative Adversarial Network. A GAN makes possible "deep fakes" and other challenges to authenticity. Phillip Wang's ground-breaking website "This person does not

exist" (2019) foregrounds our inability to distinguish real from generated images by presenting lifelike head shots of imaginary people. This plays into fears around identity theft, surveillance, and fake news. We are now well into Baudrillard's fourth order of simulacra, where meaning is no longer grounded in the veridical, the real and the illusory instead existing in a free play of signification.

This infinite replicability of digital artefacts has produced a crisis in the art market. In order to maintain value, a buyer must be reassured that they are purchasing a unique item, something original and (that word again) authentic. The technological solution is the non-fungible token (NFT) which acts as a unique identifier for an artwork. The aura of originality is protected by block-chain technology, a measure of computational work. This technique is tainted by association with cryptocurrencies, non-regulated funds that operate through obscurity in what look remarkably like pyramid schemes, their value ever-inflating. But this proximity is perhaps appropriate for an art market that values the animated GIF of Nyan Cat at half a million dollars.

The term AI has now replicated itself throughout artistic discourse, prompting fears that such "intelligences" might become self-aware, posing the existential threat to humanity that The Terminator (1984) burnt into our retinas. More pragmatic are concerns that GANs serve to replicate the biases of their programmers and the knowledge bases that they are fed. When Snapchat beautifies a woman's face, it leaves light-skinned subjects alone but lightens darker skins. When Stable Diffusion is asked to picture an "ambitious CEO" it includes only men. But given the phrase "supportive CEO" it allows women into the solution set.

This brief survey demonstrates that there's ample reason to be uneasy about digital technologies. But, equally, there are myriad opportunity here for new media artists to interrogate developing technologies in terms of politics, economics, ethics, identity, and other factors. In the next section the focus will narrow to examine philosophical concerns.

The ontology of digital media

Ontology is the study of being and existence. An investigation into the ontology of digital media can once again begin with a response from

ChatGPT.

> The ontology of digital media refers to the study of the nature and structure of digital media, including the concepts, categories, and relationships that define them. This includes the analysis of digital media's properties, characteristics, and behaviours, as well as the ways in which they are used and interacted with by users. There are various approaches to the ontology of digital media, including conceptual modelling, metadata schemes, and semantic web technologies, which seek to provide a standardized and systematic understanding of digital media.

This response demonstrates that ChatGPT prefers technological subjects (modelling, metadata) to those relevant to the philosophy of media art. We find a more interrogative approach in Lev Manovich's landmark book The Language of New Media (2001). Manovich proposed five properties that distinguished new media from traditional media. A new media object a) can be described mathematically and hence manipulated with algorithms, b) has a modular structure, allowing assemblage at different levels, c) has operations that can be automated, d) is mutable, possessing potentially infinite variations, and e) supports cultural transcoding, by being a composite of meaning at the levels of both computer and culture.

Manovich explicitly chose to avoid digitality as a key concept, claiming that cinema already exhibited the core characteristics of the digital: discrete encoding (one frame following another at a determined rate) and multimedia (combining visual, audio, and linguistic elements). This logic may have been convincing two decades ago, when digital artefacts could still be experienced at a certain remove. Then one still had to choose to engage with computers, video games, and the internet. But the ubiquity of digitality in contemporary industrialised society has dramatically changed our relationships with media.

A prime example is the mobile phone. When still a novelty, we encountered this device as *present-at-hand*, a tool that required consideration and examination. But ubiquity has allowed us to take this tool for granted. We no longer even refer to it by it's function as a telephone, but only as "mobile," something that moves with us, in our own rhythm.

This tool is now *ready-to-hand*, like Heidegger's canonical example of the hammer. It's so close to us that we experience the ongoing task (making a call, taking a photo) more so than the object itself. It has become an unexamined component of our phenomenological world.

If digitality added nothing to an experience already exemplified by film, then cinema patrons would experience digital angst. But our unease in the presence of digital media is significant. Manovich notwithstanding, there is value in considering digitality as a core concept in new media.

The sonic and digital angst

This section will shift attention from the visual to the sonic. Though sound is often ignored in our ocularcentric world, it possesses properties useful for a discussion of perceptual systems. Sound also has historical precedence, since music was the first digital medium to be introduced to the public at large. The reaction to the compact disk launch in 1982 typified a form of digital angst that is predicated on the ontology of the medium.

The CD represented a paradigm shift in how music was recorded, packaged, and distributed. The marketing for this new medium promised "pure, perfect sound — forever" but not every listener took the bait. A vocal minority of musicians and audiophiles continue to declare that analogue sound is "musical" while digital conveys mere "information." Compact Discs, MP3s and similar media are "lifeless" and remove music's "soul." As a balm, companies provide the audio recording market with products that are designed to add "warmth" to cold digital recordings. Hardware solutions re-introduce vacuum tubes and solid state circuits into the audio processing path. Software plug-ins emulate reel-to-reel tape saturation or guitar amplifier distortion. This is analogous to how photographic apps add film "looks" to selfies snapped on digital phones. You may not own a Kodak Instamatic, but your photos can look as though you do.

The irony here is that digital processes are being leveraged to add qualities associated with prior analogue media. This indicates that for the consumer it's not necessarily the actual processes that are important, but rather the affect of the final product. That said, there has also been a return to analogue media objects themselves. The record album, with its fading cardboard cover and scratched vinyl, provides the grain that signifies

authenticity. Music cassettes warp, the tapes get tangled, and one has to apply a pencil to maintain the correct tension between reels. Contrast this with CDs in their brittle plastic cases or digital streams received on glossy devices with characterless monochromatic features. The difference in tactility is significant. So it's not merely nostalgia that drives contemporary listeners to analogue formats. After all, many of them are too young to have experienced vinyl or cassette in the last century. There are distinct material and experiential differences in how we encounter these forms.

Neil Young is a musician vocal about his antipathy to digital music. In the biography Shakey (2003), he describes his own digital angst using a metaphor reliant on the tactile.

> Did you ever go in a shower and turn it on and have it come out tiny little ice cubes? That's the difference between CDs and the real thing — water and ice. It's like gettin' hit with somethin' instead of havin' it flow over ya.

This quote makes two claims typical of this discourse. First, it contrasts the laminar flow of analogue with the discontinuity of digital. Second, it equates digital sound with cold temperatures. Furthermore:

> Nobody realized digital wasn't as good — because it wasn't an obvious problem. It was more obvious after you listened awhile. The first time, "Hey — no hiss, wow, great!" You didn't realize there was no sound until a little while later.

This claim at first appears ridiculous, since we certainly *can* hear music from CDs, Spotify, and Apple Music. But Young is highlighting an important existential lack in the digital stream. His "no sound" references the "nothing" that exists between the discrete samples that make up the discontinuous digital stream. If digital audio is full of holes, how can it represent music, a form associated with beauty and emotion? How can a sequence of ones and zeroes possibly provide an integral aesthetic experience? This form of digital angst originates in the ontological realisation that a profusion of tiny voids perforates our music.

The paradox of sonic perception

To interrogate this angst, we will examine musical timbre, how this is encoded by digital devices, and, finally, the biology of audition.

Timbre is an expression of the quality of a sound; it's what allows us to distinguish between different musical instruments played at the same pitch and volume. We have many descriptive words for timbre – harsh, brittle, boomy – but we can also perform mathematical operations to derive quantitative data. To analyse the properties of sound we examine frequencies within a time window of some duration. Repeating this operation successively produces a spectrograph, a map of the intensity of frequency against time. The shorter the time slice, the more accurate our graph.

But what is frequency? Expressed in the unit Hertz, the frequency of a sound wave is how many oscillations occur in one second. 10 Hz describes ten repetitions of the wave in one second, while 100 Hz means the cycle repeats one hundred times. It is now apparent that our spectrograph has a fundamental problem: the variables on each axis are *dependent*. We plot frequency against time, but frequency is a measure of movement in time. As we increase the accuracy of our spectrograph, the time window becomes shorter than what is necessary for a full pressure wave oscillation. Once a complete wavelength can no longer fit in the allowed time, the frequency of sound becomes an undefined quantity.

This arbitrarily small sound is an *impulse*, an idealised sonic quantity considered to be both instantaneous and without timbre. Impulses are pure quantities used to test audio equipment and create spatial representations of acoustical spaces. Because they have no overt sonic qualities of their own, they can reveal qualities of the environments into which they are introduced. An impulse is a sonic probe.

Pulse code modulation (PCM) is the primary technique used to encode audio as digital data. PCM represents an acoustic sound pressure wave with a numeric value at discrete steps along the time axis, a process called sampling. A mathematical law (Nyquist's Theorem) guarantees the exact reproduction on output of the same continuous waves we had on input, so long as our sampling rate is double the frequency we wish to reproduce. Though mathematically sound, this principle remains

unconvincing to many audiophiles, who don't accept that a distinct stepped signal can become smooth again. In practice, a series of low-pass filters accomplishes the task quite readily, but the scepticism remains.

To pursue the concept of discontinuity further, consider open reel tape. Tape was the dominant audio storage medium in the period after WWII, used for multitrack recordings in studio, master tapes, and even home listening. Until the digital era, almost all music consumed on records and cassettes started life on open reel tape. So, how does it work?

Magnetic tape consists of a pliant substrate, a layer of glue, and an active top layer of metal oxide crystals. A tape recorder applies a magnetic field, forcing these crystals into a particular disposition that represents the audio signal. Under a microscope, the metal oxide is clearly seen as discrete lumps or flakes. Hence, analogue tape has much in common with a digital data stream: both technologies require the transduction of sound from one medium to another, both can reliably reproduce a continuous signal when played back through appropriate equipment, and, most important, both store the sonic data in discrete chunks. There are, of course, significant differences between the two storage formats, but since both rely on a substrate of discontinuous particles, we are forced to consider a disturbing possibility. If the discontinuous and discrete substrate of digital media is what causes us to wonder "what's missing?," then our analogue tape formats should engender a similar anxiety. Surely music is lost between the oxide flakes?

Now we turn to biology in order to understand the mechanism of hearing itself. Sound enters the ear, vibrates the tympanum, and is amplified as vibration by the bones of the middle ear. This mechanical energy is then transduced at the boundary to the inner ear. The spiral structure known as the cochlea is filled with fluid; the sound manifests here as a pressure wave. Hair bundles (stereocilia) located in the poetically named Organ of Corti each detect a particular range of frequencies by flexing in the pressure wave. This movement releases chemicals that trigger nerve impulses which travel the auditory nerve to the brain, through numerous ganglia and related bodies. Besides this afferent (ear to brain) network, there are also efferent (brain to ear) nerves that return signals back to the inner ear from different ganglia, creating complex feedback systems.

Our hearing mechanism presents several curious paradoxes. First,

if presented with harmonic overtones, we can readily hear a root note, even if that frequency is not actually present in the sound (the "missing fundamental effect"). Second, quieter sounds can be masked by louder sounds that occur *later* in time. This anti-temporal masking is leveraged in perceptual encoding schemes, such as the MP3 file format. Third, we readily hear frequencies that are much higher than the rate at which the auditory nerve can actually fire. This occurs because bundles of nerves transmit parallel streams of impulses at different rates, to be summed into a faster frequency by the brain. Audio perception is a complex affair!

To return to a consideration of discontinuity, it's worth emphasising that our ears possess only a finite number of stereocilia (about twenty thousand). Each associated neuron either fires or does not, depending on the input threshold within the critical band. At this foundational level, the frequency of sound is represented as a sequence of discontinuous data values. And the same is true of our other senses, since in every case the number of receptors is countable, their responses constrained within a finitude. Our sensations are comprised of discontinuous data streams which our nervous system integrates using sensory grouping, interpolation, and other methods, driven by memory and expectation. This is the process of perceptual coherence.

Conclusion

Digital angst manifests as negative affects (frustration, unease, tension, fear) when we are presented by technologies that challenge normative ideas of privacy, identity, value, and representation. Investigating the ontology of digital music as a specific case, I've proposed that our fundamental problem with digitality rests with our knowledge that the substrate is discontinuous, riddled with voids between each meaningful bit. We worry that this sequence is insufficient to sum to the phenomena we observe, preferring the continuous, grainy texture of the analogue. But this dichotomy is challenged by the evidence presented in the previous section, since the substrate of our perceptual apparatus is also discontinuous. If we wish to hold onto digital angst and also be consistent, we must assert that our senses are insufficient for the task at hand. But this conclusion is counterfactual.

Instead, we can accept the phenomenological fact of our integral

presence in the world. A finite series of impulses, each lacking frequency, can sum to the rich timbre of a musical instrument. Fragments of rust held together by glue on audio tape can capture complex musical performances. Our ears do function with a finite number of sound transducers. A digital stream can indeed produce a musical experience. The imperceivable discontinuity of a fundamental substrate does not invalidate the phenomenological integrity of our world at the macroscopic scale of sensory apprehension and consciousness. We can stop worrying about ice cubes in the shower.

Perception has always involved an act of integration, conjuring a continuous lived experience from discontinuous sensations. Far from being a negative influence on phenomenological understanding, digital media performs an important function by encouraging us to confront the process of perceptual coherence. Digital angst is the irritant that forces us to acknowledge the inexplicable operations of consciousness in a universe of generative absence.

Sarah Jayne Booth



This will not be Pretty (2021)
Sarah Jayne Booth
Triskel Arts Centre

Images: Jed Niezgoda





Sarah Jayne Booth's recent projects fostered an ongoing discourse between her work/practice and OSS Cork Domestic Violence Centre, Cuanlee Refuge and the feminist collective r.a.g.e. (realising•absolute•gender•equality).

This will not be Pretty focused on representing domestic violence victims' lived experience through installation, spoken word, experimental film, and an adroit choreographed sequence performed by Katrina Foley.

Funded by the Arts Council of Ireland, Cork City Council, and Tusla.

SARAH JAYNE BOOTH is a Cork-based multimedia installation artist whose work centres on domesticity, gender inequality and social histories. She has an MA in Art & Process from MTU and maintains an actively engaged practice with a number of solo exhibitions, bursaries and notable group exhibitions. She initiated and heads up the collective r. a. g. e. (realising•absolute•gender•equality) alongside Dr Eve Olney, Fiona Ní Leíme and Dr Honor Tuohy. Their recent zine publications are available on weragetogether.com.

Practitioner Reflection

Sarah Jayne Booth

Digital media is a powerful tool for multi-media installation artists, such as myself. My installation art - creates three-dimensional 'domestic' scenes that people can engage with, on multiple sensory levels. Digital media is a prominent mediated layer within my work that functions in a series of ways in order to create a more dynamic and immersive experience for the observer/participant. The additional component of video projection within my installations extends the physical space, evoking an encounter that guides the individual to explore both the material objects and the environment differently.

My exhibited work is held within curated domestic 'scenes' of repurposed and often mutated everyday household objects. These mise-en-scenes are staged in order to arouse the curiosity of the visitor and to create conditions in which the work seems to be attempting to engage in a dialogue with the observer concerning the latent meanings subjugated within the normalised social narratives of the objects. Casting combined digital video, sound and light technology, across these fictionalised spaces plays a major role in creating a unique installation encounter. I employ sound to evoke nostalgia and emotion, while light is delicately choreographed to create an atmospheric mood that relays a sense of hidden historic narratives entombed within the

individual objects. Orchestrated together - the digital components construct a powerful experience that envelopes the space and draws the audience into the assemblages.

For me the installations are designed and coordinated to entice the audience into a certain kind of looking, so their own sensory association with the space becomes another component entangled within the work. The digital elements, alters the scope and embrace of the spaces, offering very fluid boundaries and adds additional layers of connectivity that often result in a shift away from solely object orientated artworks. One of the key catalysts for the use of these elements in my work has been using them as triggers and as a sensory engagement to blur the line between art and life. The repetitive, continuity of the digital environment applies an atemporal status to the work, normalising the space, in a way. Therefore the use of digital media is a commentary of and relies upon our blindness to digital technology within our home environments, particularly in terms of the manner in which our bodies absorb how our biographies and sense of ourselves is mediated back to us.

Although I am not exclusively a digital media artist, I believe that my practice is still reflective of Irish digital art in the sense of how digital technology has impacted upon artistic habits and altered the way we previously envisioned creativity. Digital arts scope and embrace are hard to pinpoint as the technology is often the end itself and artists are exploring myriads of possibilities in the very essence of this relatively new medium. While certain works depend on digital tools to amplify already-existing forms, others may use digital technology as the fundamental and indissociable element in the making of the piece.

Since its inception integrated media has developed so much so fast that audiences are constantly seeking new aesthetics with more 'experience'. Consequently, multimedia practices are perpetually reinventing themselves to meet with the needs of audiences and the high-tech society we have become. My work plays with the emergent characteristics of digital media in terms of how its rapid progression is so quickly digested within the norms of everyday life and how its progression also correlates with the quiet redundancy of other material objects. Digital media has always been integrated into my practice and will undoubtedly continue to inform and impact the work that I create in the future.

Martina Cleary

Ritual Dream of the Shaman is a six-channel video installation, including video projection mapping, sound and 3D imaging for multi-screen installation. The soundtrack 'Port Na bPúcaí', or 'Lament of the Fairies', from the Great Blasket Islands, is performed by Billy Mag Fhloinn, who also features as the dreaming shaman. Contemporary dance artist Isabella Oberlander also appears in this piece, as Elen of the Ways, a figure of the Sídhe standing on the thresholds as a harbinger of change.

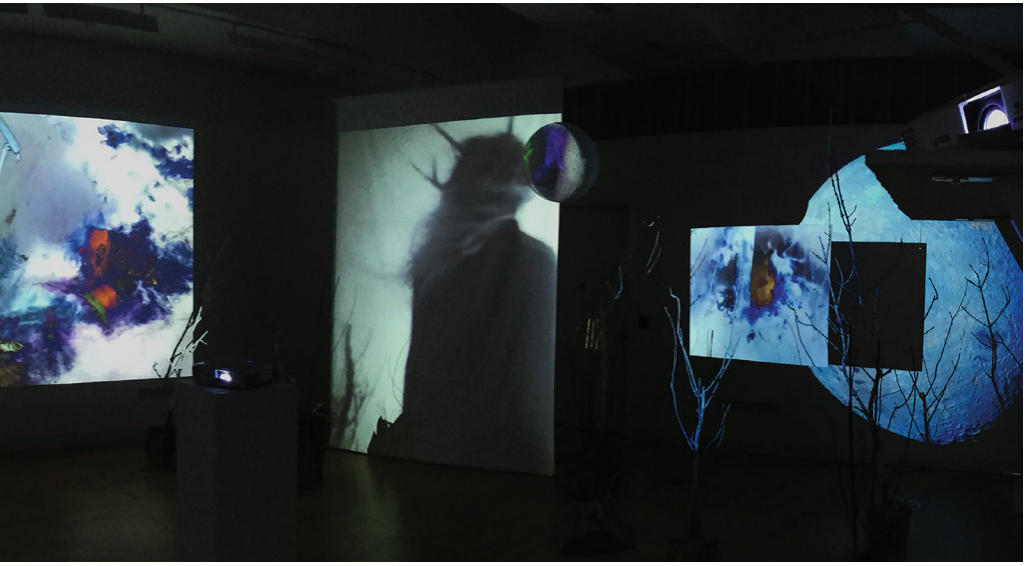
Thematically, the work explores ritual and its reinvention, as a means of reconnection with older Irish beliefs and customs more attuned to the cycles of the natural world. Re-imagined and reinvented actions are used as a



creative means of tapping into deep memory, with performance becoming a means to access, embody and bring into the present an imaginal world less alienated from the natural one. Ritual performance is treated as a re-generative act to re-vision re-connection to a different way of interacting with place, culture and tradition. These performative elements within the work, also explore the agency and role of the artist as shaman, and shaman as artist within the context of contemporary eco-activism.

The work was first shown in The Luan Gallery, Athlone from June to August 2019.

Ritual Dream of The Shaman (2019)
Martina Cleary





Ritual Dream of The Shaman (2019)
Martina Cleary





MARTINA CLEARY is a visual artist working in the area of contemporary lens-based and digital media. She has studied at NCAD, Crawford College of Art & Design, the Finnish Academy of Fine Art, Aalto University, and the European Centre for Photographic Research e(CPR) Newport. Her areas of research interest include new media technologies, memory theory, depth psychology and identity studies. Over the past two decades she has presented her work in over eleven countries, participating in a range of international festivals, solo and group exhibitions. Her work has been supported by the Irish Arts Council, CREATE Ireland, The Finnish Cultural Foundation, Suomen Kulttuurirahasto, CIMO, The National Forum For The Enhancement of Teaching & Learning and a number of regional arts offices in both Ireland and Finland. In addition to her work as an artist and researcher, she has been a guest artist and lecturer for the EU Urban Development Project Helsinki, Metropolia University of Applied Sciences Helsinki, BCA/NUIG, GMIT, Cardiff School of Art & Design and Moore College of Art and Design Philadelphia. She currently lectures in the Dept of Fine Art & Education at LSAD/TUS, where she is also Principal Investigator for the Art & Psyche Group in ACADEMY.

DIGITAL ART, IRELAND, THE FUTURE

MICHEÁL O'CONNELL

The term 'post-digital' was interrogated seriously for the first time a decade ago.[1] In direct contrast to posthumanist thinking, which positions humans as just one set of actors in a natural and machinic network of equivalent agents, post-digital was a reaction against new media. Presumably the frequent throwing about of the phrase also arises from the apparent redundancy of the category 'digital', ironically due to its pervasiveness, its omnipresence. Digital 'had lost its purchase as a defining cultural logic; it continues, and yet it is no longer really new or interesting.'[2] Irrespective of whether the long-promised Internet of Things did not arrive on time and if the more recent Metaverse seems to have gone off the boil too,[3] hardware, ubiquitous devices, and what used to be called software, now apps, are integrated into every system, process, facility, into all aspects of the much-discussed supply-chain. The algorithm is

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1. Florian Cramer, 'What Is "Post-Digital"', A Peer Reviewed Journal About (APRJA) 3, no. 1 (2014): 10–24.
2. Caroline Bassett, Anti-Computing: A Provisional Taxonomy, Anti-Computing (Manchester University Press, 2022), 35.
3. Artnet News, 'The Art Angle Podcast: Hito Steyerl on Why the Metaverse Has Already Failed', The Art Angle, accessed 31 March 2023; Martyn Landi, 'The Year in Tech: Elon Musk, Tech Sector Downturn and the Metaverse', Irish Examiner, 31 December 2022; Jemima Kelly, 'Whatever Happened to the Metaverse?', Financial Times, 16 February 2023

everywhere, and as Sherry Turkle once put it, 'we are all computer people now'.[4] Regarding this end of digital though, someone forgot to tell the artists, or a big fraction of them. Many carry on oblivious, which is not necessarily a negative, nor surprising. A common misconception is that artists would be intent on a definable creativity or, alternatively, align neatly with historical notions of avant-garde-ism. As was the case with the advent of plastic before and the creeping up of the motor car, it is hard to imagine a world without the abundant digital platforms which, less than a generation ago, did not exist. Whilst tech-gurus are already absorbed in the next phase, and some 'bang on' relentlessly about transhumanism, forgetting that 'humans have always been technological',[5] or obsess over 'the singularity', pseudo-philosopher artists are left to ruminate on the significance of what has, after all, barely been digested. As well as jumping on bandwagons, and at opportunities to try out new kit, it can be important to play Luddite.

Along with Digital, two other elusive words in the title of this piece are Art and Ireland. The end of art has rightly often been proclaimed, whether by earlier 20th century avant-gardes, 60s Situationists or 1970s conceptualists. The rise of art-activism again, of socially engaged and politicised art, is a reminder of the common discomfort, or outdatedness, in accepting that art could be an end in itself, which makes 'its own way and by its own means'. It seems that art must latch on to other practices, commit itself to political agendas, or be about technology, collaborating with science, or be employed as panacea or therapy. Countering some of these trends Clare Bishop had rigorously analysed, unpicked, and critiqued the history of socially engaged art in her Artificial Hells.[6] Nevertheless, any artist worth their salt will be aware, if tacitly, of the deflationary trajectory, of the contradictory lauding of something, whilst at the same time sensing its inconsequentiality. Dissociating is more central for some, like Hito Steyerl, who explains, 'I don't mind if someone wants to call me an artist, but this wouldn't be the first description that comes to mind'.[7]

4. Sherry Turkle, 'How Computers Change the Way We Think', The Chronicle of Higher Education 50, no. 21 (2004): B26.
5. Joanna Zylinska, AI Art: Machine Visions and Warped Dreams (Open Humanites Press, 2020), 107.
6. Claire Bishop, Artificial Hells : Participatory Art and the Politics of Spectatorship, 1st ed. (London: Verso, 2012).
7. Artnet News, 'The Art Angle Podcast'.

Associated with every phase in the progress of computing since the 1960s were new types of cultural output. It is as if each of those stages has left a residue of practitioners aligned to the resulting sub-discipline. Pertinent questions about machine creativity were posed during the pre-digital computing era in fact, when interest in the often-misunderstood field of cybernetics was growing. Jasia Reichardt's famous Cybernetic Serendipity show brought together key individuals, including the ground-breaking Nam June Paik, back in 1968.[8] Mainframe, followed by desktop and home computing, saw contrived uses at first and the writing of programs specifically geared towards art and design. These developments aimed at so called creatives; illustration, graphics, time-based media, and later web professionals, continued into the 1990s and beyond, resulting eventually in the Adobe, Autodesk, and other well-known suites, which have expanded to exploit cloud computing today. Sequencing roughly chronologically in the order the sub-genres arose, there are those still occupied with original usages such as digital photography and video, unapologetically resolving their projects with tools which have their origins in mimicking pre-computing methodologies. Then there is the history of net-art, generative, and the fascination with glitch which continues. Implementations of 3D modelling, animation, visual effects, and motion graphics overlap with the periodic interest in Virtual Reality (VR) and Augmented Reality (AR), uses of simulation, gaming, and the creation of interactive experiences. The emergence of the network triggered hopeful cyberfeminist, cyberpunk, non-hierarchical, probably anarchistic, and certainly libertarian, thinking. Coding in Basic, Fortran, C, Pascal etc. or using machine code was obligatory for everyone working in these fields initially, with HTML arriving later. Those with the propensity and inclination still acquire programming skills or may by-chance possess them. New languages and language-interfaces, high-level or more essential approaches to coding, in Javascript, Python, Go and Processing to name a few, remain key. In reaction to the dry digital infrastructure which materialised, came a harking back to 1960s and '70s Happenings and Fluxus experiments. A newfound interest in the corporeal, performance, the body, Live Art and liveness took hold. Transmediale, Ars Electronica, ISEA and

8. Jasia Reichardt, ed., Cybernetic Serendipity : The Computer and the Arts (London: Studio International, 1968).

similar art-technology gatherings were, and are, more than peppered with examples of such. Long before the global pandemic, coincidental with a wave of interest in virtual worlds like Second Life, the term 'blended reality' was coined. The phenomena of hacker culture and maker-spaces arose as an aspect of post-digitality too, reflecting a desire to counter the extent of cerebrally driven activity with hands-on involvement. Open experimentation with 3D scanning and printing, photogrammetry, laser cutters, soldering, extending to robot making, the use of Arduinos and Raspberry Pi, is encouraged. Artists occasionally get the opportunity to work with advanced robotics too. It would be a mistake to confuse use of scientific principles or, say, mathematics with the digital technological realm but that is often done, and SciArt developed as a significant scene for a time. A call out in 2022 by the European Commission's Joint Research Centre (JRC) for a SciArt Summer School is evidence of the continued valuing of interdisciplinary collaborations. To be able to extrapolate into the future better, we will return to look at the recent years again, but first let us probe into the digital art scene as it is now.

Following on from the claims in the introductory paragraph here, it has perhaps got to the point where every artist's work could be deemed digital in some way. In which case, James O'Sullivan's noting, in the opening chapter of Digital Art in Ireland New Media and Irish Artistic Practice, 2021, that 'digital art is fundamentally digital; it is art which cannot happen without some contemporary media technology, some element of computation, some bit- based machine',[9] would no longer define a discrete group. Cursory research, nonetheless, finds fifty to seventy Irish, or Ireland-based, autonomous artists (as opposed to those working only in applied commercial or media-industrial contexts), whose output is more expressly coupled with the idea of 'digital'. These individuals, as well as partnerships or collectives, are split across the range of specialities just alluded to and are not by any means operating according to the same paradigms or with identical goals. Established names include Bassam Al-Sabah whose computer-generated environments and projects home in on 'personal

9. Lauren McNamara, 'Book Review: Digital Art in Ireland New Media and Irish Artistic Practice', International Journal of Performance Arts and Digital Media 17, no. 3 (24 September 2021): 426, https://doi.org/10.1080/14794713.2021.1981022.

mythology, historical trauma and queer possibility'.[10] Nadia J. Armstrong's audio-visual pieces attempt to speak for digital natives, mashing together digital-cultural fragments with blatant expressions of concern: 'We never read the terms and conditions because they are designed that way'.[11] Alan Butler is unashamedly philosophical, whilst exhibiting his high production-value materials in prominent venues internationally. His site is amusingly rude in places: 'Please do not add me to your mailing list. I will lose my shit if you add me to your mailing list. Thanks in advance!'[12] Kevin Donnelly makes 'Stupid videos about stupid things'. He must be fun to hang out with, even if the output (at this stage) does appear a bit – overused word alert - 'random'. Michelle Doyle works with or creates 'pirate radio stations, machines that destroy everything, autonomous zones, listening parties, homebrew wine and noise performances'.[13] Aoife Dunne, another 'next generation' artist, has something of the Lorna Mills (Canada) oeuvre about her, but is maybe less salacious, and utilises more media.[14] Beth Fox, showing in Belfast at the time of writing, incorporates her day-job in precarious employment into hilarious anecdotes rendered in the form of short films combining in motion graphics. Her Bum Shower is surely a masterpiece.[15] Everyone knows of John Gerrard who has made important work foregrounding the material repercussions of the 'invisible' network, drawing attention to data centres for example. Arguably, recent Masters in Art and Environment graduate, Katie Nolan has provided more poignant outcomes relating to the same subject, with her justified counter-surveillance piece, Trespass.[16] It feels as though the old mildly subversive

10. Bassam Al-Sabah, 'Bassam Al-Sabah', Artist website, Bassam Al-Sabah, 31 March 2023, https://bassamalsabah.com/.
11. Nadia Armstrong, 'Nadia J. Armstrong', Artist website, Nadia J. Armstrong, 31 March 2023, https://nadiajarmstrong.com.
12. Alan Butler, 'Alan Butler', Artist website, Alan Butler, 31 March 2023, http://www.alanbutler.info.
13. Michelle Doyle, 'Michelle Doyle Artist', Artist website, Michelle Doyle Artist, 31 February 2023, https://michelledoyle.xyz.
14. Aoife Dunne, 'Aoife Dunne', Artist website, Aoife Dunne Artist, 31 March 2023, https://www.aoifedunne.com.
15. BUM SHOWER: Adventures from the Gig Economy, HD Video (London, 2019), https://vimeo.com/348130663.
16. Katie Nolan, Trespass, 2022, Drone, drone footage, 2022, https://www.katienolanartist.com/#/trespass/.

rite-of-passage, 'slogging apples' (if you are not from Cork then Google it), has been linked to the dramatic replacement of orchards now – well, at least one – with data centres. John Halpin studies the latest methods for high-fidelity 3D-scanning and incorporates the captured figures into meticulously designed hyperreal landscapes. Subjects are perfectly lit, and colour settings calibrated for printing onto museum-quality paper. To call the resulting pictures uncanny does not do them justice.[17] Elaine Hoey, another of the younger artists listed here, creates politically and emotionally loaded VR experiences, as though designed specifically to raise consciousness about refugees in transit, or about the nature of European nationalisms.[18] Ian Keaveny (or Crash-Stop) is bravely critical of the nostalgic and insular tendencies in Irish art, and for him 'glitch' is where it is at.[19] Denise Kehoe works in traditional media but also produces highly recommended spoofs of contemporary phenomena such as her Misguided Meditation, available on SoundCloud.[20] Full Stack Feminism, which is active in both Ireland and Britain and 'aims to embed intersectional feminist methodologies in digital humanities', has selected Roibí O Rua to be one of its two 2023 artists in residence. Self-proclaimed popstar and Waterford based O Rua, works across media to explore 'Queer Identity as it relates to and evolves with Cyberspace'.[21] Whilst the short descriptions above give a sense of the broad range of practices, they refer to those which happened to be in the first half of an alphabetical list compiled whilst preparing this essay. A further substantial publication or equivalent may be in order. The complete list and results from an impromptu survey can be found at mocksim.org/DigiArtIRL[22] and I will ram some of the remaining names in here. Why not: you can look them up yourself? They include Glenn Loughran, Conor McGarrigle, Daniel Murray, Ailbhe Ni Bhriain, I should mention myself,

17. The Parted Veil: John Halpin (Cork, Rep. of Ireland, 2019), https://www.youtube.com/watch?v=1srD9RzIdII
18. Elaine Hoey, Artist website, 31 March 2023, https://www.elainehoey.com
19. Ian Keaveny, Artist website, 31 March 2023, https://www.artconnect.com/ian-keaveny
20. Denise Kehoe, Misguided Meditation, 2020, https://soundcloud.com/user-234457878/misguided-meditation
21. Roibí O Rua, 'Queer Music Artist', Artist website, D1G1TRAN, 31 March 2023, https://www.d1g1tran.com
22. Micheál O'Connell, 'Digital Artists, Ireland: Listings and Survey', Artist website, https://www.mocksim.org/DigiArtIRL/

Micheál O'Connell (or Mocksim), Elinor O'Donovan, Dermot O'Hare, Paul O'Neill, Robin Parmar, Yuri Pattison, Aisling Phelan, El Putnam, Frank Sweeney, Luke van Gelderen, Joanna Walsh and Frank Wasser. There are more: Jeremiah Ambrose who is now ISEA Headquarters Executive Director,[23] Kian Benson Bailes, Sarah Jayne Boot, Ann Burns, Martina Cleary, Robert Collins, Caleb Daly, Ed Devane, Cailean Finn, Edy Fung, Trevor Furlong, Adam Gibney, Kerry Guinan, Kerry Hagan, Michael Hanna, Cliona Harmey, Fiona McDonald, Andrew McSweeney, Jennifer Mehigan, Mícheál Ó Catháin, Robin Price, Jennifer Redmond, Renee Spila, Giuseppe Torre and Eoin Woolfrey. In conjunction with housing a proliferation of folk and traditional craft-based practices it would appear that Ireland is a hotbed for digital-, technology-, and post-conceptual art. The breadth is also reflected in exhibitions such as Sorry, Neither, 'an exploration of Afrofuturism', which was held in Belfast's Naughton Gallery at Queen's in 2021; Science Gallery's fourteen years of programming in Dublin ought to be mentioned; and the fact that commercial entities like Kerlin Gallery manage digital assets too is worth noting.

In order to get a sense for where this is all going it will be useful to glance back again at how economics, politics and technical innovativeness have shaped each other. The period since the Global Financial Crisis (GFC) 2007-08 and the uprisings it spawned, has seen a reappearance of all the old -isms thought dead in the water, a swathe of art-activism as stated, and much political and blatantly didactic work. Wokeness (not meant as a pejorative here) coincided with growing anxieties about surveillance culture, the intentions of social media platforms, and the corporate takeover of the network. Edward Snowden's revelations in 2013 and the Cambridge Analytica/Facebook scandal later exposed state and private company collusion in use of data. New terminology arose. Technically literate practitioners exploited possibilities for sousveillance, appropriation and crowdsourcing, and currently, whether deliberately or inadvertently, are drawing attention to the risks with deep fake, and other convincing uses of AI. Many have been dabbling with big-data, training algorithms, speculating on the bearing of Crypto and NFTs, or creating bots. At the time of writing ChatGPT is chatted about ad nauseam. Ireland was affected in specific

23. Jeremiah Ambrose, 'ISEA International', ISEA International, 31 March 2023, https://www.isea-international.org/.

ways by the late noughties crash but it recovered surprisingly, at the macro level anyway, relative to other countries on the edges of Europe. Rather than campaigns primarily connected to living standards, it was unfinished business about furthering the distance with a socially conservative past, which captured the imagination. The resulting movements succeeded in improving abortion rights and in having same-sex marriage legally endorsed. 'Repeal the 8th' required real political strategizing and tactics and so we might wonder about the distinction between determined organisational campaigns and the recurrent art-activism. Though of course there are overlaps; artists, performers and musicians are citizens in the world too. Still, it seems somehow inappropriate to discuss aesthetics when an item of cultural production either documents social wrongs or is intended as political statement.[24] To do this well would surely require serious commitment to, not one, but two bodies of knowledge, extreme sensitivity, and an ethical attitude towards the subject matter. These dilemmas, relevant now to the digital arena, were prefigured by debates around humanistic documentary photography. Allan Sekula once wrote that treatment of Alfred Stieglitz' 1907 photograph The Steerage in romantic art terms was 'an incredible denial of the image's status as report'.[25] Ariella Azoulay addressed the multifaceted challenges in The Civil Contract of Photography.[26] Likewise, conversations which focus too much on the career, accomplishments, and fame of individual artists, when their work is about social inequality, say, are surely dubious (regardless of prerogatives related to a person's background or demographic). Scepticism would be advisable then as to the actual effectiveness of much political art, digital or otherwise, and even its place as affecting commentary. Given the post-art situation referred to already, and the nature of developed techno-capitalism then, questions of ideology are inevitably peculiarly intertwined with whether what is produced is noteworthy from an art-aesthetic point of view. The arguments

24. Micheál O'Connell, 'Artists Are Only a Law unto Themselves', in Art, Law, Power: Perspectives on Legality and Resistance in Contemporary Aesthetics, ed. Lucy Finchett-Maddock and Eleftheria Lekakis (Oxford: Counterpress Limited, 2020), 16–33, https://sro.sussex.ac.uk/id/eprint/76711/.
25. Allan Sekula, 'On the Invention of Photographic Meaning', in Thinking Photography, ed. Victor Burgin, 1st ed. (Basingstoke, Hampshire: MacMillan, 1982), 101.
26. Ariella Azoulay, The Civil Contract of Photography (New York : Cambridge, Mass: Zone Books - MIT, 2012).

here tie in with the downside of collaborating and hint at issues with SciArt partnerships and for technology-art generally. To be too impressed, seduced, or for artists who adopt positions thoughtlessly, or not thoughtlessly enough, the danger is of simply adding to the fundamental homogeneity, and being guilty of what Joanna Zylinska defines as 'style transfer'.[27] Put one way, using the Solarise filter in Photoshop does not make you Lee Miller nor Man Ray, any more than following instructions from a book on how to paint in dabs and dashes makes a person Van Gogh. It was these characters' attitudes in the context of the historical periods they inhabited which counted, and it seems a crime to reduce their impact to a matter of style. This cynical logic extends to the current enchantment with AI. John Roberts gives attention to, 'the kind of artists today... associated with the vast swathes of AI image programming, such as the asinine CloudPainter and DeepDream vision programmes and their epigones', and to, 'dim-witted, skateboarding robot painters'[28] who indulge in 'cheerful, turgid blandness',[29] whilst Zylinska points to famous key AI artist's 'worryingly uncritical instrumentalism'.[30]

Finally, returning to that other word in the title, to the chagrin of nationalist purists no doubt, 'Ireland' is a porous formation, and must be. Ireland has a huge diaspora but relatively small population and needs to draw people in. It has a special place with respect to both Europe and North America, and a dramatic recent history of 'uneven and combined development'. Indeed - and this is blatant economic-determinism - it is no surprise that Ireland, like South Korea for instance, not infrequently, puts out challenging and provocative cultural artifacts. Aside from imperatives to do with providing jobs and so forth, considering homegrown neoliberalism's offering over of the Republic as a comfortable haven for Apple, Google, Amazon, Facebook and similar, and the relationship with technology continuing now in other shapes, an especially rich stream of critically engaged digital art, or art which at least remarks on these changes

27. Zylinska, AI Art, 11,50,62.
28. John Roberts, Art, Misuse and Technology: Micheál O'Connell's 'System Interference', hardback (Skibbereen, Co. Cork, Ireland: Uillinn: West Cork Arts Centre, 2022), 65–66, https://www.lulu.com/spotlight/westcorkartscentre.
29. Roberts, 69.
30. Zylinska, AI Art, 82.

might be expected. Prevalent traditional and folk-art, almost by definition, continues to promulgate lies about a physical landscape which has been vastly transformed as a by-product of digitality. Paradoxically this bucolic idealism is also a form of VR and represents sheer escapism. It is not only a case of the invisible network, but, for better or worse, the older heavier infrastructures are not what they used to be. Think of the quantities and ever-changing varieties of vehicular traffic including e-bikes and e-scooters, the road systems including 'managed motorways' and APNR for policing, how architecture has changed, the way agriculture functions now: these are all entangled with digitality and computation. The emergence of new types of farms, server- but also wind- and solar-, are linked to the needs (or are they demands?) of the aforementioned tech-firms and disrupter companies. It is as if we live within the algorithm or in an expanded digital world where physical goods are transported around the planet in ways 'analogous to how data transfer works, via "packet switching", and how information flows through communication networks'.[31] In responding to the excitement about, or the sensibleness of, as well as the absurdities in, these astonishing developments, the risk is a glut of 'preachy' one-dimensional artefacts. There is no easy formula for what to do however, because to ignore what is in front of our eyes would be equally spurious.

31. Micheál O'Connell, 'Digital Stalinism', in Now This: Reflections on Our Arts and Cultures, ed. Patricia Borlenghi (Manningtree, Essex: Patrician Press, 2021), 54, https://sro.sussex.ac.uk/id/eprint/96445/.

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