This is the pre-peer reviewed version of the following article:

Ryan, John. *"From Dada To The Browser: Internet Art And The Democratization Of Artistic Production In The Digital Era"*. The International Journal of Critical Cultural Studies 12.1 (2014): 41-51. Web.

From Dada to the Browser: Internet Art and the
Democratization of Artistic Production in the Digital Era

'Internet art' is both a concept and movement. What was once a form of 'new media art',

existing at the fringes of the mainstream art world, is increasingly becoming an accepted

part of global arts practices, reflecting the incorporation of contemporary technologies into

art. In particular, the rise of internet art since the 1990s parallels the growth of internet

technologies. This article will examine internet art from theoretical, historical and

technological perspectives, arguing that the internet has democratized artistic practice in

the digital era. It begins with several frameworks relevant, including the theories of Marshall

McLuhan, Jean Baudrillard and Nicolas Bourriaud. Formative art-historical moments,

including the influence of Dadaism, the Fluxus movement, conceptual art and participatory

art, and pre-internet media-based works, such as *Participation TV*, will then be considered.

Towards a Definition

Known also as online art, browser art, net art, network art or net art, internet art makes use

of and integrates into works the 'participatory, connective and dynamic' features intrinsic to

online environments in general (Ippolito 2002, 485). These terms are usually used

interchangeably. Josephine Bosma in her book *Nettitudes* (2011) defines net art simply as

'art based in or on Internet cultures' (24). In 2002, Tilman Baumgärtel offered this

definition:

> Net art addresses its own medium; it deals with the specific conditions the Internet
>
> offers. It explores the possibilities that arise from its taking place within this
>
> electronic network and is therefore 'Net specific'. Net art plays with the protocols of
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> the Internet, with its technical peculiarities. It puts known or undiscovered errors

within the system to its own use. It deals creatively with software and with the rules

software follows in order to work. It only has any meaning at all within its medium,

the Internet. (cited in Corby 2006, 2)

Corby acknowledges that network art includes technologically complex works but also

works in which technology is not a necessary condition, such as print books and

performances (2006, 2). While the Web is the primary medium for many net artists, other

practitioners exploit various forms of digital media or employ a combination of platforms—

email, instant messaging (IM), streaming, text-based environments (MUDs or Multi-User

Domains), three-dimensional environments (VRML), videoconferencing (CU-SeeMe), image

files (JPEG, TIFF), audio files (MP3, MP4) and video files (MPEG, WMV). As a result, internet

art encompasses a broad and dynamic range of email, multimedia and software-based

projects, as well as online, offline and ICT (Information and Communications Technology)

driven works.

The majority of internet artworks come into existence only in connection with an

'online community' (Preece 2000). Bosma's sprawling declaration on the importance of 'net

cultures' to internet art is almost a text-based artwork in itself:

Net cultures are the basis, the means and the source of net art. They are *not*

predominantly technological. They involve various academic communities, news

sites, financial trading, gaming communities, hacker groups, online shops, web logs

(blogs), software and hardware developers, social network sites, dating sites, porn

producers and porn audiences, media activists, institutional and independent

cultural platforms and anything else happening that could be disseminated via the

Net. (Bosma 2011, 25)

The production, distribution and marketing of net art via through 'net cultures' or 'online communities' allow practitioners to reach massive global audiences while circumventing the mainstream distribution channels associated with galleries and museums (Ippolito 2002). In particular, long-term web-based projects are often coordinated by online communities dispersed across the globe, but also across a variety of online and offline digital environments and software applications. These participatory and connective aspects of digital media influence the very production of internet artworks and enhance the public's capacity to interact with them.

Interactivity, Agency and Community

In 'Ten Myths of Internet Art' (2002), Jon Ippolito attempts to dispel some of the misconceptions surrounding internet art nearly a decade after its birth in the 1990s. Movements towards democratizing practices in the creative arts—including the open exchange of concepts and data between artists and the public—galvanized the appearance of internet art nearly two decades ago as a distinct area of digital art (Ippolito 2002, 487). As former curator at the Guggenheim Museum and a practising artist in his own right, Ippolito's perspective on the emergence of net art carries weight: 'the online art community has developed almost entirely outside the purview of galleries, auction houses, and printed art magazines' (Ippolito 2002, 486). The nature of the market economy is reflected by the high cost of purchasing traditional works of art. Galleries inherently exclude certain audiences, including those not able to travel to its physical location or pay admission fees. Furthermore, the iconic standing of analogue objects means that the very definition of art is deeply intertwined with physical works, such as sculptures and paintings. Internet art counters these sorts of limitations. Open-source platforms and freely accessible academic research inspired practitioners, 'posting art and criticism with no promise of reward but the

opportunity to contribute to a new artmaking paradigm' (Ippolito 2002, 487). The internet artmaking paradigm, sketched by Ippolito, continues to reflect an ethic of the democratization of art and its processes of production. It involves the viewer in its ongoing creation.

In order to examine Ippolito's arguments conceptually, the media theory and concepts of Marshall McLuhan help to frame internet art, especially as a democratic movement. Indeed, in our media-saturated world, many of McLuhan's predictions from 50 years ago are ringing loudly true. His prescient notion of the 'global village' (McLuhan 1964, 93) prefigured online communities and their importance to net art practices. In the 1960s, McLuhan began to analyze 'the social transformations wrought by the new technologies of information and communication' (Gere 2006, 17). McLuhan's book *Understanding Media* (1964) contains the much-quoted dictum 'the medium is the message', that is, 'the personal and social consequences of any medium— that is of any extension of ourselves—result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology' (McLuhan 1964, 7). In other words, different forms of media—television, radio, telephony, telegraphy, photography—configure human experience in new ways, ultimately fostering agency and interconnection for users, appreciators and participants (Greene 2004, 21). For example, photography has now become an expressive medium used globally—not just by photographers or visual artists—in connection to social media communities. Moreover, his observation that 'the "content" of any medium is always another medium' (McLuhan 1964, 8) underlies the crossing-over of data that is central to different forms of internet art.

The interpretation of cyberspace as a democratic environment can be attributed, in large part, to McLuhan's 'rhetoric of subjective experience, feedback and choice' (Greene

2004, 21). For McLuhan, 'the next medium, whatever it is—it may be the extension of consciousness—will include television as its content, not as its environment, and will transform television into an art form' (McLuhan 1964). This statement foreshadowed the emergence of the internet and World Wide Web through the social transformation set in motion by an 'art form'. Remarkably, he seems to predict the emergence of internet art from television technology. The internet has become a relatively new interactive phenomenon based on older televisual devices. For example, the computer monitor is a development of the television screen. The 7-11 list community is an example of an experimental net art work that manifests McLuhan's notions through the creative application of the e-list convention. The project, especially when first conceived, also blurs the boundary between a functional communication portal and a conceptual work of art. Founded in 1997 by Vuk Cosic, British artist Heath Bunting, Russian artist Alexei Shulgin, German artist Udo Noll and Jodi.org, 7-11 was 'the first international mailing list dedicated entirely to experiments in net.art' (Bazzichelli 2008, 101). Cosic defected from the Nettime and Telepolis mailing lists in search of an open, unmoderated platform in which to experiment and satirize.

Initially a reaction to mainstream exhibition venues and to the non-interactive mailing lists of the mid-1990s internet art scene, 7-11 became a virtual locus for net art experimentation. The project evolved into a collaborative email artwork 'in which the dynamics and possibilities of the mailing list format were explored' (Bosma 2011, 156). 7-11 involved unconventional uses of internet technology in which the 'administration tool, including subscriptions, header and footer variables, and moderation rules, was world read-writable by any Web surfer' (Reas and Fry 2007, 563). The project radically experimented with the acceptable uses of an emerging communications technology. A virtual persona

named Keiko Suzuki—credited as author of the fictional *Classics of Net.Art* books series devised by Cosic as an online spoof—played the role of list mediator. As a female persona in the male-dominated net art movement, Keiko became an icon for cyberfeminism. 7-11 'was not about posts but about the ways of using the list almost like with other net art—not so much about particular pieces but about new ways of working. We were doing research, not development' (Cosic cited in Bosma 2011, 156). In other words, as they creatively redefined mailing lists and other platforms, early internet artists considered themselves to be artistic, technological and social researchers at the same time.

In addition to McLuhan, another key theorist for understanding internet art is French philosopher Jean Baudrillard. His seminal treatise *Simulacra and Simulation* (1981) distinguishes between these two concepts: a simulation refers to the representation of something in the real world, whereas a simulacrum is a copy without an original. Baudrillard foregrounds the tension between the 'real' (things, people, emotions, ideas, etc.) and the 'virtual' (computer representations, gaming environments, Disneyland experiences, etc.). He also suggests the importance of context (physical settings, political moods, artistic trends, etc.) in interpreting an artwork. His writings initiated interest in hyperreality and simulationist approaches to art, found in artworks that use gaming or virtual reality (VR) platforms (Greene 2004, 26). With the power of duplication made possible by simple CTRL-C keystrokes and file copy commands, techniques of data appropriation (i.e. basing a new work on the use of another project's data) and plagiarism have become integral to internet art practices (Greene 2004, 27). Baudrillard's simulacra-simulation binary calls into question the nature of the real in relation to 'telepresence', which is the virtual experience of being transported between spaces through the aid of a telecommunications apparatus. In other words, telecommunications devices, such as mobile phones and the internet, have the

capacity to take us somewhere virtually while we remain stationary in a place, for example, behind a keyboard or with mobile phones firm against our ears.

Explored by internet artists, telepresence can be defined as 'a sense of "being there" during a mediated experience [in] highly immersive virtual reality systems' (Bracken and Botta 2010, 41). Interactive internet installation artist Eduardo Kac defines 'telepresence art' as 'a new art form generated in the intersection among telecommunications, computers, and robotics' (Kac 2005, 127). Telepresence art is an outgrowth of telecommunciations art, including the experimental mail art of the 1970s and 1980s in which artists used the postal system, including letters and mailboxes, as a basis for conceptual artworks . It can also integrate internet technologies, as Ed Bennett and Kac's telepresence piece *Ornitorrinco in Eden* (1994) makes clear. The work involved a range of media, including telerobotics, landline and mobile telephony and videoconferencing (CU-SeeMe). Via the internet, anonymous participants could decide their own robotic movements through the remote physical spaces of installations set up in Seattle, Chicago and Lexington, selecting what they would see through the eye of the telerobot named Ornitorrinco (Kac 2005, 78). With the use of mirrors and lighting, participants could see themselves as the telerobot whilst they navigated a 'teleparadise of obsolescence', including magnetic tapes and circuit boards (Kac 2005, 157–160). As Kac states, 'one of the main issues raised by this piece is the cultural need for the Internet to become more of a shared social space and less of an information-delivery system' (Kac 2005, 160).

Ornitorrinco in Eden is a prominent example of Nicolas Bourriaud's conceptualization of art and aesthetics outlined in his book *Relational Aesthetics* (2002). His focus is on the relationships between actants, collective meaning-making and collaborative arts practices. Attempting to define the uniqueness of 1990s European art, Bourriaud's book is regarded as

the definitive articulation of the collective intentions of much work during this period.

Bourriaud outlines a new set of criteria for understanding the art of the 1990s, particularly through his application of internet terminology—such as 'user friendliness' and 'interactivity' (Bishop 2007). Bourriaud's definition of a 'relational arts practice' is that which considers 'the realm of human interactions and its social context, rather than the assertion of an independent and *private* symbolic space' (Bourriaud 2002). He means that an artwork is not produced by an isolated artist but rather by complex social interactions. Relational practices aim to 'establish intersubjective encounters that *literally* take place—in the artist's production of the work, or in the viewer's reception of it [emphasis in original]' (Bishop 2007). As the meaning of the work is decided collectively—in the case of net art, as part of a net culture or online community—the practice of relational aesthetics is contingent on the environment and the audience, both virtual and physical.

Performance, Chance and Innovation

In this section, I consider the history of internet art and the major art-historical and social moments that have influenced its emergence. Bourriaud's notion of relational aesthetics helps us to understand how internet art circumvents the traditional view of art productions as the independent and transportable objects of a '*private* symbolic space'. As the offspring of mail, computer, video, television and telematic art, internet art exhibits both participatory and conceptual approaches to art. Inspired by artistic developments in response to World War I and reflecting some of the techniques of experimental or avant-garde art, internet artists continue to challenge the predominance of the object of art, as well as the practices of artistic production in an evermore digitally networked world.

Internet artists focus on audience interactivity, information networks and the unorthodox application of digital technologies—exploiting randomness in their works while

shifting away from modes of pictorial representation common to mainstream arts practices (Greene 2004, 10). Rather than being oriented towards discrete manifestations (paintings, photographs, sculptures or books), internet artists aim for user-specific, open-ended and technologically-based creative processes as—in themselves—works of art, albeit ones with fluid boundaries.

Internet artists tend to be inspired by the works of Dada, the international movement originating in Zurich in 1916 in response to the sociopolitical climate of World War I. Marcel Duchamp, considered the founder of conceptual art, is a noteworthy figure within the historical roots of internet art. Duchamp as a conceptual artist and Dada as his broader art-historical context influenced the twentieth-century movement away from pictorialism in artistic practices (Greene 2004, 20). With fondness, net art innovator Vuk Cosic wrote that internet artists are 'Duchamp's ideal children' (cited in Greene 2004, 97), indicating the affection many digital artists maintain for his work even today. In 1916, Duchamp sent four postcards with meaningless (though syntactically plausible) writing to his neighbour in perhaps the first invocation of 'mail art' (Gere 2006, 15)—a movement which continued through the 1970s using 'the mail system as a medium' (Osthoff 2005, 263).

Moreover, Duchamp's unfinished work *The Bride Stripped Bare by Her Bachelors, Even*, commonly known as the *Large Glass* (1915–1923), revealed Duchamp's preoccupation with the emerging technologies of radio and wireless telegraphy through graphical allusions to antennae and electrical condensers (Hughes 2004, 128). Other artists of Duchamp's period also engaged inventively with communication technologies, creating precedents for the emergence of internet art. For instance, in 1922, shortly after World War I, Bauhaus-based Hungarian painter and photographer László Moholy-Nagy (1895–1946) produced the

first artwork, *Telephone*, to exploit the telephone system, specifically 'to communicate directions for the making of enamel tiles' (Goggin 2006, 199) through the new medium.

Other important influences on the evolution of 1990s net art include Fluxus, Happenings and E.A.T. (Experiments in Art and Technology). Coined in 1961 by American artist George Maciunas, Fluxus comprised the performances and experiments of an international group of artists, poets and musicians most prominently including Allan Kaprow, Robert Watts, George Brecht and Yoko Ono. As Owen Smith comments, 'through their work and activities, these artists have actualized a network-based paradigm of creative engagement [through] collectivity, art, creative production, and distribution' (Smith 2005, 117). Central to understanding Fluxus are notions of 'performativity, process, play, networked culture, and communal artistic practices' (Smith 2005, 117), including creative strategies such as the unpredictable execution of instructions by audiences. Early Fluxus artists employed the postal system (especially postcards) and telecommunications media extensively to exchange ideas between practitioners dispersed across the globe. Proposed two years earlier to Fluxus by performance art pioneer Allan Kaprow, the term 'Happening' refers to site-specific artistic events that entail the dissolution of the division between performance and spectator, between audience and participants.

Another important influence on internet art was E.A.T., a group formed in 1966 by Bell Labs engineer Billy Kluver, painter Robert Rauschenberg, theatre artist Robert Whitman and electrical engineer Fred Waldhauer. Convinced of the importance of truly equitable collaborations between artists and engineers, E.A.T. worked with seminal artists of the 1960s and 1970s, including John Cage, Andy Warhol and Jasper Johns (Bijvoet 1990, 27) to produce a variety of artworks. An example of an E.A.T. project was the Pepsi Pavilion at the 1970 Expo in Japan, including a massive geodesic dome designed by a team of engineers

and artists, and a fog sculpture by Fujiko Nakaya. In the 1950s and 1960s, John Cage's work particularly engaged with notions of interactivity, chance and multimedia through new forms of electronics, as evidenced by his silent piano work *4'33"* (1952)—which consisted of Cage sitting 'silently' at the piano for four minutes and thirty-three seconds and came to influence Fluxus artists interested in 'process, interaction and performance' (Gere 2006, 16).

In addition to mail art and early electronic art found in E.A.T., computer art—defined generally as any artwork that uses a computer in its production, exhibition and storage—is a precursor of internet art. French artist Vera Molnar, American computer artist Charles Csuri and German-born digital artist Manfred Mohr are regarded as pioneers of computer art. In particular, Csuri was one of the first professional artists to begin using a computer for creative purposes. His work *Sine Curve Man*, a rendering of a man's face using algorithmic programming, won first prize in the *Computer Art Contest* (1967)—a predecessor of the prestigious *Prix Ars Electronica* inaugurated in 1987. Later in the 1960s, the first computer art exhibitions were held in the United States and Germany.

In the early 1960s, artists such as Roy Ascott developed technology-based installations merging computers, video and satellites as well as theories of telematics, or what would later be referred to collectively as ICT (Information and Communications Technology). Ascott is known for his development of telematics, defined as 'computer-mediated communications networking between geographically dispersed individuals and institutions...and between the human mind and artificial systems of intelligence and perception' (Shanken 2003, 1). The telematic combination of computers and communications technology is evident in Ascott's *La Plissure du Texte* (1983)—a collaborative work that went online through the software ARTEX (Artist's Electronic

Exchange Network) all day for twelve days straight, enabling artists to create a collective fairy tale (Gere 2006, 19).

Internet art is also indebted to video, satellite and television art. During the 1970s and 1980s, video and cable television—integrated in certain instances with fax and satellite technologies—became more widely used by artists. These emerging media enhanced themes of interactivity, networks and data transfer. In particular, television art stimulated broader interest in artworks based in mass media. Like conceptual art, these forms of media-based art called into question the status ascribed to art objects, such as paintings and sculptures, and introduced unpredictability and chance as creative elements (Gere 2006). Precedents in video and television art, especially Paik's work, contributed to internet art's evolution. Paik's *Participation TV* (1963), *Magnet TV* (1965), *Silent TV* (1969), *The Selling of New York* (1972) and *TV Buddha* (1974) transfigured the television from a commercial broadcast medium to a platform for interactive, participatory and conceptual discovery. *Participation TV* enabled spectators to create abstract televisuals by external means— specifically by talking into a microphone hooked up to the television (Morley 2007, 284). Paik's work makes use of televisual distortion and appropriates the medium for artistic purposes—strategies which would later become fundamental to internet artists. The distortion of television signals through creative practices helped to elicit the latent possibilities of the technology.

Telecommunications artists from the 1960s used fax machines and satellites to produce globally networked works of art, as a conceptual forerunner of internet art (Corby 2006, 4). Artworks of the 1970s exploited developments in videography, video games, computer-generated special effects and satellites, demonstrating the increasing integration of art and technology during this time. In particular, Paik and others made us of early

portable video technology. In *TV Buddha*, an eighteenth-century statue of Buddha placed on a table 'regarded' its own image broadcast on a television set through the use of a closed-circuit video camera: 'the statue sits there, in both animate and frozen time, contemplating itself as spectators contemplate the contemplation of contemplation' (Ran 2009, 188-189). Furthermore, in the later 1970s, Sherrie Rabinowitz and Kit Galloway produced *Satellite Arts Project* (1977), using satellites and television to devise a work of dance. Their project *Electronic Café* (1984) has been described as a 'telecollaboration' (Gere 2006, 18).

These artists and works provided the foundation for the birth of internet art as a hybridization of artistic modernism, the avant-garde and emerging media platforms (Gere 2006, 13). The 1970s stimulated an interest in post-industrial economies based on information networks (Gere 2006). Gere goes on to trace the history of internet art to the development of communications technologies, such as telephones, in the late 1800s and early 1900s. Nagy's *Telephone* works, Cage's use of radios and Johnson's mail art—along with the first applications of media technologies in video, television, satellite and cybernetic art—drew attention to the potential ramifications of new technologies for human experience and creative production. By the late 1980s, Tim Berners-Lee would propose the World Wide Web as a global, post-industrial hypertext experiment (Greene 2004, 214). By the mid-1990s, international artists started to meet virtually on the list Nettime to explore the potential of the World Wide Web as an artistic medium and collaborative mechanism (Bosma 2011, 126).

Browsing, Coding and Networking

Technological developments have enabled internet art to mature into a global phenomenon. With the further development of internet technologies, 'net art' was first brought into circulation by critics such as German artist Pit Schultz (Bosma 2011, 29). Vuk

Cosic is a pioneer of internet art who in 1994 adopted the World Wide Web as a medium and devised the term 'net art' to characterize the practices of an emerging group of artists. His early works were comparable to the mail art of Ray Johnson. He mailed images to other artists and to his network, but he later began to develop web-based projects. As his first initiative, *Net.art per se* parodied a CNN site in commemorating 'Net.art per se', a meeting of internet artists and commentators in Trieste, Italy in 1996 (see www.ljudmila.org/naps/home.htm). *Net.art per se* reflects many characteristics typical of the movement, including parody, skepticism towards mass media technologies and the appropriation of web protocols. Indeed, the term 'net art' was 'found' serendipitously by Cosic in a scrambled email message containing undecipherable ASCII—the code used by computers to translate English characters to a series of numbers (Greene 2004, 214).

The history of internet art is, therefore, one of performance, chance and innovation. Internet art bears a lineage to its precursors in media-based art that mobilized the transmission of ideas between spectators, artists and online communities. As with its media art forerunners, internet art developed outside the conventional auspices of galleries, print-based art magazines and auction houses (Ippolito 2002, 486). Employed as a technological and sociocultural mechanism, the internet makes possible the introduction of audience feedback into net art works. Hence, having outlined the art-historical influences, in the following section, I survey the technological innovations that have precipitated internet art—including graphical web browsing, developments in programming languages and the rise of social media platforms. Indeed, the trajectory of internet art from its media-based precursors (mail, telephone, television and satellite art) is connected intrinsically to the emergence of new technologies.

Following World War II, developments in computing and information systems provided the context for avant-garde art practices (Gere 2006). During the 1950s, multimedia experimentation and audience participation served as methodological precedents for the internet arts practices of the late twentieth century. In 1969, the Cold War initiative ARPANET went online and was later decommissioned in 1989. As a predecessor of the internet of today, ARPANET was a supercomputer network created by the United States Department of Defense's Advanced Research Projects Agency (ARPA). Including an early version of email, it allowed researchers in different places to communicate to one another and created an information network that would survive if any one part were destroyed (Morley 2009, 102). The disruption of American communication networks was a monumental concern during the Cold War era. Further hardware and software developments in the 1980s led to the World Wide Web in the early 1990s.

One of the major technological factors in the advent of internet art was the development of user-friendly interfaces, particularly between 1994–1996. A Graphical User Interface (GUI, pronounced 'gooey') combines text and graphics to facilitate the use of software in navigating the internet. In contrast, non-GUI browsers, such as Lynx, are text-only. The most popular graphical web browsers used today include Netscape Navigator, Internet Explorer, Mozilla Firefox and Google Chrome. However, Mosaic is an important predecessor to these browsers. Initially released in 1993 by the University of Illinois, Mosaic became the first browser of its kind to facilitate the arrangement of images and text on a single page (Bainbridge 2004, 456). With the increasing accessibility of web browsers, the general public began to refer to the internet as 'the Web' (Kac 2005, 61). When these user-friendly graphical browsers became available in the mid-1990s, numerous artists took advantage of the technology with intense excitement, as noted, producing work in the

name of 'net art' (Gere 2006, 21). Kac observes that artists have since employed the

internet as 'a means of storing, distributing, and accessing digital information [as well as] a

social space, a conflation of medium and exhibition venue' (Kac 2005, 60).

Motivated by the free software movement, in 1997 art critic Matthew Fuller, artist

Simon Pope and programmer Colin Green, working under the label of I/O/D, began to

devise a web browser for artists (Greene 2004, 84). Eventually known as Web Stalker (1997–

1998), the browser was an alternative to Netscape Navigator and Internet Explorer—both

designed to serve corporate rather than aesthetic purposes. The new graphical interface

highlighted the relationships between websites through 'web neighbourhoods' (Greene

2004, 85), allowing the user to visualize and access web content differently. Web Stalker

utilizes the 'latent structure' of the internet: 'the user opens a Web address, then watches

as the *Stalker* spits back the HTML source for that address. In a parallel window the Web

Stalker exhaustively maps each page linked from that URL, exponentially enlarging the

group of scanned pages and finally pushing an entire set of interlinked pages to the user.

The pages are mapped in a deep, complex hypertextual relation' (Galloway 2004, 218). Web

Stalker is an example of technological innovation by internet artists working in collaboration

with programmers.

Developments in computer programming languages also facilitated the emergence of

net art. In many ways, internet art has paralleled the growth of programming languages,

including text-only mark-up HTML, Macromedia languages, Javascript, Java, Perl and PHP

(Reas and Fry 2007, 565). In 1989, Tim Berners-Lee, a British scientist at CERN in

Switzerland, formulated Hypertext Markup Language (HTML), enabling users to

communicate and exchange information through the internet (Poole 2005, 15). More

specifically, HTML made text and images available to viewers with suitable software and

allowed the creation of links between documents (Gere 2006, 20). Between 1995–2000, the net art scene affiliated with Bunting, Shulgin and Lialina coded in browser-based languages, such as HTML, with Javascript in order to implement more complex processes, such as those involving algorithms (Reas and Fry 2007, 564). However, the bare-bones text-only format was characteristic of projects of this period, highlighted by wwwwwwww.jodi.org.

The next horizon of internet art relates to the uptake of social networking platforms, mobile phone and gaming technologies, such as apps, GPS (Global Positioning System) software, augmented reality, virtual spaces and programming advances, including HTML5. This exciting new direction for art and technology reflects internet art's continuing engagement with emerging technologies. Through these integrations, the boundary between internet art and other forms of digital art is increasingly becoming indistinct. For example, Joshua Davis is an American designer and digital artist known for his use of emerging internet applications and coding novelties. Influenced by American abstract expressionist Jackson Pollock, Davis is regarded as a pioneer of Flash-based art, as outlined in his book *Flash to the Core: An Interactive Sketchbook* (2002). Adobe Flash or Macromedia Flash is a multimedia software for creating graphics and animation. However, his latest use of HTML5 language in *The Endless Mural*, an 'interactive, collaborative art website', is an example of a contemporary digital artist using novel internet technologies to produce participatory art (www.endlessmural.com). The work enables users to easily create artworks as part of an ongoing, online public mural. As the fifth revision of Tim Berners-Lee's original HTML from 1989, HTML5 more fully integrates multimedia and improves user readability. As one of the first online art projects to use HTML5, *The Endless Mural* produces a gesture-based environment (pointing, clicking or swiping across the page) in which randomly selected motifs are mapped to patterns drawn by the user. Images and source code are

downloadable, foregrounding the customization of web environments that dominates the internet today. The work of Davis offers another example of the potential of the internet to democratize art.

Conclusion

This article has described the democratizing of art through the internet and associated technologies. Net art works are neither restricted to museum or gallery locations nor to the internet itself. Internet art contains elements of conceptual, participatory and performance art, while crossing between many technological platforms, theoretical positions and web environments. Indeed, the internet itself has evolved far beyond the web of its formative years, and internet art is testimony to this. The way in which artists exploit the internet reveals the hidden potentials of technology, continually redefining human relationships to computers, robotics and digital inventions. Yet, the democratizing potential of internet art poses challenges to the conservation of the digital artworks themselves. In 1999, the Guggenheim Museum launched the Variable Media Initiative in an effort to preserve performative and media-based works. The project allows the translation of the artwork into a different medium once its original medium becomes obsolete. Included in the initiative is Paik's *TV Garden* (1974), among many others. Therefore, while internet art redefines the creation of art in today's world through enhanced agency, interactivity, collaboration and online-offline flows, the conservation approaches used to keep it alive also themselves help to redefine museum practices.

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