Introduction

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Electronic literature has become an international research field being spread in North America, South America, Europe, Africa, Asia and Australia. The first international organization that works for the development of electronic literature is the Electronic Literature Organization, founded with the aim of promoting the creation, researching and teaching of literature made for the digital medium. The ELO (Electronic Literature Organization) was founded by Scott Rettberg, Robert Coover, and Jeff Ballowe and was established in Chicago in 1999. The ELO staff publishes open source anthologies of electronic literature called the Electronic Literature Collections and celebrates the ELO Conference and Media Art Festival every year. Electronic literature mainly differs from printed literature in its inclusion of media art elements that make it closer to the artistic studies and activities than traditional literature has ever been. In the ELO Conference and Media Art Festival as well as in the E-Poetry Festival and other conferences about Electronic Literature apart from conferences and workshops like those dedicated to printed literature, there are exhibitions, readings and performances. This mixture of literature with art provides innovative exchanges among researchers, writers and artists. Another characteristic of electronic literature that demands that experts from different fields work collaboratively is the technological requirement of electronic literary works. Artists and writers cooperate with computer scientists to make their works of art.

Since 2010 the ELO has led an international organization called CELL (The Consortium on Electronic Literature). It is an open access, non-commercial resource offering centralized access to literary databases, archives, and institutional programs in the literary arts and humanities scholarship. All important organizations and research projects that have been archiving electronic literary works during last years have joined to be members of CELL, these are:

- CIBERIA (Spain), led by Maria Goicoechea, Laura Sanchez Gomez, and Begoña A. Regueiro Salgado
- NT2 (Canada), led by Bertrand Gervais, Sylvain Aubé, Gabriel Gaudette, Ariane Savoie and Robin Varenas
- Po-ex.net (Portugal), led by Rui Torres
- ELMCIP (Norway), led by Scott Rettberg

- ADEL (Germany), led by Joergen Schaeffer, Peter Gendolla, and Robert Kalman
- I love e-poetry (US), led by Leonardo Flores
- Brown Digital Repository (US), led by John Cayley
- ADELTA (Australia), led by Anna Gibbs and Maria Angel
- EBR (US), led by Erik Rasmussen, Joe Tabbi, and Will Luers
- Hermenia (Catalonia), led by Laura Borras
- ELL (US), led by Dene Grigar and Nicholas Schiller

In an attempt to study the history of electronic literature we could assume that there have been three generations. The first generation would correspond to pioneering works that were created between 1952 and 1995. Authors started by using programming languages such as BASIC and Pascal. The first famous work of electronic literature was *Uncle Roger* (1986) by Judy Malloy. Malloy wrote the text, designed its structure and created the authoring software BASIC Narrabase, finally she published it as an interactive hyperfiction on ACEN Datanet. Later, in the 1980s and 1990s electronic literature writers used Hypercard, Storyspace and INFORM. In 1987 Michael Joyce composed his interactive and nonlinear hypertext fiction *Afternoon, a story*. Other famous hypertext fictions at that time were: Stuart Moulthrop's *Victory Garden* (1992), Carolyn Guyer, *Quibbling* (1993) and Shelley Jackson's *Patchwork Girl* (1995), which is rooted in an allusion to Mary Shelley's *Frankenstein, or, The Modern Prometheus* and is an example of one of the popular cyberfeminist narratives of the 1990s. In this current issue of the *Journal of Comparative Literature and Aesthetics*, devoted to electronic literature, we have the privilege of counting on a new cyberfeminist text by Virginia Barratt, who used to be a member of the Australian cyberfeminist group VNS Matrix.

The second generation of electronic literature started from 1995 with the rise of the World Wide Weband when programming languages were developed - HTML, JavaScript, CSS, DHTML, ActionScript, Python and Ruby. The academia worked in research projects, made knowledge bases and organized courses, exhibitions and conferences that made possible that electronic literature was known worldwide. The third generation of electronic literature uses social media networks, platforms and apps, and is beginning to be more known than ever. Nevertheless, literature which has been digitized to be read on a computer is still more read than electronic literature with multimedia elements. For instance, the classic Gutenberg project in which literary classic works can be read online or downloaded to keep them in an eBook is more known by the general public than electronic literature directories. Another example of the success of digitized literature -printed literature which can be read on a digital format- v.s. electronic literature -which is born digital, can only be read on a computer and usually includes generative, interactive and audiovisual modes- is the case of Instapoetry –published in the social media Instagram, Twitter and Tumblr- which is even gaining more readers than printed poetry. Instapoets become famous by social media before publishing their poetry books. The future of

electronic literature will be probably to be known in the social media. Electronic literary works have not taken part of best sellers nor their authors have won any Nobel Prize. Electronic literary works have a non-profit and avant-garde tradition, are published in open access and free websites and have not been successfully commercialized. Future electronic literary works may be more famous for the common public when they are more integrated in the syllabi of educational institutions or more commented in social media. Maybe once electronic literary works are made with more sophisticated programs they achieve the same commercial success as videogames.

The history of electronic literature starts in North America with American theorists such as David Bolter, George Landow, Robert Kendall, Katherine Hayles and Christopher Funkhouser –who has contributed an article about Jim Rosenberg for this special issue- and the previously mentioned authors: Malloy, Joyce, Moulthrop, Guyer and Shelley. In Australia, the first collective of cyberfeminist new media artists were the above mentioned VNS Matrix who published *A Cyberfeminist Manifesto for the 21st Century* in 1991 using the word cyberfeminism for the very first time. They also published hypermedia works online and presented installations and public art works in Australia and overseas. After them, other cyberfeminist collectives and artists of different nationalities created websites, digital texts and new media art: Old Boys Network, Subrosa, Genderchangers and Femhack among others. Apart from the collectives, another artist from Australia who deserves attention is Mez Breeze, a net.art artist who crafts experimental storytelling, virtual reality literature, VR sculptures/paintings, XR experiences and gamescode poetry. Nowadays, ADELTA is the Australian Directory of Electronic Literature and Text-based Art under the direction of Anna Gibbs and Maria Angel. It provides a site for writers, artists and scholars of electronic literature and text-based e-art to enter, tag, describe and write critically about works.

In Canada, The Canadian Directory of Electronic LiteraturesNT2 promotes hypermedia art and literature in Canada and around the world and plays an active part in the open culture movement. In Latin America the very first Latin American electronic literature works are *IBM* (1966) by Argentinean Omar Gancedo and *Le tombeau de Mallarmé* (1972) by Brazilian Erthos Albino de Souza. In the eighties experimental writing was made with computers, one example is: "Soneto sóprávé" by Daniel Santiago with programming by Luciano Moreira. In the 90s hypermedia and digital poetry are globalized. Some of the most famous artists are: Ana María Uribe, Belén Gache and Gustavo Romano from Argentina, Eugenio Tiselli from Mexico and Enrique Beó from Peru.

In Europe the Nordic portal Elinor (www.elinor.nu) used to contain 64 works of electronic literature, of which 19 were Danish, 12 Norwegian, 6 Swedish, and 27 Finnish. The ELMCIP project, https://elmcip.net/, whose leader is Scott Rettberg, was developed by the Bergen Electronic Literature Research Group and published an *Anthology of European Electronic Literature* edited by Maria Engberg, Talan Memmott, and David Prater. ELMCIP

Knowledge Base is still updating collections and it includes collections of e-literature from all around the world such as: *Portuguese Electronic Literature Collection* curated by Álvaro Seiçaand *Russian Electronic Literature Collection* by Natalia Fedorova. There are also 3303 records of creative works, 4100 records of critical writing, 92 records of teaching resources and 639 records of organizations among others.

With regards to the Baltic region the region in which more research on e-literature has been done is Estonia. In Germany, Austria, and the German-speaking Switzerland there have been some of the pioneers in the field of e-literature: Theo Lutz and Max Bense, who started their e-literary career in the late 1950s. E-literature is also present in three main portals in Poland: Techsty - literaturainowe media, http://techsty.art.pl, Korporacja Ha!art, http://ha.art.pl and Perfokarta, http://perfokarta.net. As far as Hungaria is concerned, the first Hungarian hypertext novel, GOLEM by Peter Farkas, dates from the late 1990s and is still available at http://www.interment.de/golem/. In Slovakia, we should highlight Zuzana Husarova's *Pulz* (2009). From Czech Republic, the most famous author is Marketa Bankova with *New York City Map* (2000). In Slovenia the first examples of electronic literature were text adventures written for the ZX Spectrum 48K computer. The most known author is VukCosic, whose entire ASCII art corpus is considered as electronic literature. In Croatia, their most important volumes were *Croatian Tales of Long Ago I-II* (2002 and 2006) edited by Helana Bulaja, based on a classic Croatian fairytale book written in 1916 by Ivana Brlic-Mažuranic. In Italy, the first Italian hypertext was written by Lorenzo Miglioli in 1993:*Ra-Dio*. The OLE Officina di Letteratura Elettronica (Workshop of Electronic Literature http://www.elettroletteratura.org/ is the first Italian website that publishes electronic literature. In Spain, the most important websites and projects of electronic literature are: Hypertulia,http://www.ucm.es/info/especulo/hipertul/indexeng.htm, Hermeneia, http://www.hermeneia.net/cat/ and Ciberia, http://www.ciberiaproject.com/.An updated and complete collection of Spanish electronic literature can be visited in the Knowledge Base of ELMCIP Website: the *Spanish Electronic Literature Collection* by Maya ZalbideaPaniagua,https://elmcip.net/research-collection/spanish-electronic-literature.

In Portugal, Pedro Barbosa is considered the father of generative texts with his well-known *Sintext* (automatic generator made with Abílio Cavalheiro) and *Oficio sentimental* (textual generator) both published in A.L.I.R.E. in 1994. Nowadays Barbosa collaborates with Rui Torres, Director of the Centre for Computer-generated Texts and Cyberliterature Studies at Universidade Fernando Pessoa in Oporto. Rui Torres' *Amor de Clarice* and *Poemas no meio do caminho* (2009) were published in the Electronic Literature Collection Volume 2 in 2011. In France there is a long tradition of literary experimentation. In 1960, François Le Lionnais and Raymond Queneau founded the "Ouvroir de Littérature Potentielle", known as OuLiPo, an international group of French writers and mathematicians who made experiments with certain forms of constrained

writing. In mid-1990's the first works of hypertextual fiction were published in French on CD-ROM such as: *Frontières Vomies* by Jean-Marie Pelloquin (1995) and *20% d'amour en plus* by Fançois Coulon (1996). Present day important authors of French language e-literature are: Philippe Bootz, Serge Bouchardon and Marcel Bénabou, their works have been collected in the French Language Electronic Literature Collection by Jonathan Baillehache, https://elmcip.net/research-collection/french-language-electronic-literature. Following the ideas of Oulipo, a research group dedicated to digital art and literature was created in Switzerland: Infolipo (Informatique et Littérature Potentielle –Informatics and Potential Literature, created in 1987 by Ambroise Barras and Pascal Delhom. Apparently, Belgium does not have portals or anthologies devoted to digital literature, except for a special issue of the Flemish journal Dietsche Warande & Beaufort (DWB), (August 1999, n. 4, with a CD-rom) edited by Eric Vos and Jan Beaten. Nevertheless, some examples of digital literature have been either published online or on CD-ROM. Anne-Cécile Brandenbourge's *Apparitions inquiétantes*, (1997-2000) is one of the first hypertexts written in French and published online. A more recent example of hypertext is G. Berche-Ngô's *Hypertexte*, published online in 2010. In Netherlands, in 2008 they launched *digidicht*, a virtual platform for Dutch poets, visual artists, and designers. According to Yra van Dijk present daythe website works as an anthology of Dutch digital literature. In the UK one of the first publishers that promoted artists working with internet and new-media was Ellipsis, in which CDROM's of artists like Simon Biggs were produced. Digital artist Stanza created the website *Soundtoys* in order to exhibit new works of audio visual artists. In 2009 Belfast (UK) hosted the 15th edition of the ISEA International (Inter46 Society for the Electronic Artists) and some of the major events were scheduled in Dublin. In 2019 the ELO Conference and Media Arts Festival has been celebrated in Dublin. According to Markku Eskelinen and Giovanna Di Rosario in other countries such as Greece and Luxembourg there is no production of e-literature –or there are no records yet.

With regards to African electronic literature there seems to be a growing number of works but little scholarship according to Kwabena Opoku-Agyemang's dissertation *Beyond Oral/Digital: Ghanaian Electronic Literature as a Paradigm for African Digital Textuality*, in which specific examples of e-literature from Ghana –concrete poetry, conceptual poetry and mobile video games- are analysed. The first known example of conceptual poetry is Nana Awere Damoah's *My Book of #GHCoats* (2013). We can find digital literature in Nigeria-based Cassava Republic with the launch of Ankara Presshttp://www.ankarapress.com/. Most of digital literature that can be read online belongs to virtual libraries and social media.

As far as Asia is concerned, it is important to emphasize that the first international conference of electronic literature dedicated to Arabic electronic literature took place in 2018 in Dubai bearing the name of "New Horizons and

Global Perspectives". The conference keynote speakers were Prof. Katherine Hayles, Prof. Zhour Gourram, a prominent novelist and digital critic in the Arab World, and Mr. Karim Sultan, a distinguished figure in the field of Arts in the UAE. In the Arabic Electronic Literature Group the supervisor is Sally Baldwin -Vice president of Electronic Literature Organization (ELO)- and the Director is Reham Hosny. We have the pleasure to announce that one of the members of the Arabic E-Literature Group, Eman Younis, has contributed to this special issue on electronic literature with a paper about the need for digitizing Arabic literary texts.

From China, Chinese digital literature can be read in China News Digest, http://www.cnd.org/whatiscnd.html,chpoem-1@listserv.acsu.buffalo.edu and in http://www.xys.org, (New Threads), where users can access examples of Chinese literature such as poems, stories, etc, among others. With regards to Japan, the Japanese Association for Digital Humanities (JADH) held its ninth annual conference "Localization in Global DH" at Kansai University, Osaka, Japan in 2019. A very successful current genre of eliterature from Japan are cell phone novels, which have appeared in other countries as well, but Japan is the only market where these works have found real commercial success. In the ELO *Hallelujah* (2004) by Nika and *Contemporary Japanese Poetry Generator* (2012) by Nodoka Shinonome.

The main objective of this issue is to highlight the theoretical, comparative, philosophical, pedagogical and multicultural perspectives of electronic literature from all around the world experts. It includes articles that show how electronic literature is being created, read and studied in different languages and in different parts of the world.

The first article "In the Beginning Was the Poem@: Interspecies, Robotics & Random/e-Poetry" belongs to a Spanish famous electronic literature writer from Zamora: Tina Escaja. She offers readers an exploration of her own latest random e-poetry projects. In the second article, "On Jim Rosenberg's *Word Space* Multiplicities" Chris Funkhouser, from Missouri, United States, analyses Rosenberg's revelatory book, *Word Space Multiplicities, Openings, Andings: Collected Essays and Papers in Digital Poetics, Hypertext, and New Media*. In the third article "Close Reading of Stephanie Strickland, Cyntia Lawson Jaramillo and Paul Ryan's *slippingglimpse*", Maya Zalbidea Paniagua, from Madrid, Spain, offers semiotic studies of a well-known electronic literary work supporting theories from Katherine Hayles, Asunción López-Varela, Giovanna di Rosario, Lisa Swanstrom. From French academia, Arnaud Regnauld analyses one of the first classic hypertext fictions in "Liquid Times —Michael Joyce's *afternoon, a story*" and Serge Bouchardon and Magali Brunel in "Teaching Digital Literature: a French Study Exploring Didactic and Literary Approaches to the Introduction of Digital Literature in French High Schools" work with sample cases to clarify the ways in which the teaching of a digital work fits in with that of more traditional literary works, and also show how teachers use their scientific and professional skills to apprehend and teach digital literature. In the sixth article:

"First and Second Waves of Indian Electronic Literature", two research scholars from India, Shanmugapriya T and Dr. Nirmala Menon, identify and discuss the first and second waves of Indian electronic literature and the paradigm shift between the waves, they also discuss about the lack of attention by the academic and research firms in India and conclude with the discussion of their experiences as editors of the Indian Electronic Literature Volume 1. Our third Spanish author, Laura Sánchez Gómez in "Mapping Spanish e-lit: Networks, Readings and Communities" explores in which way the virtual space of Spanish e-lit circulation affects the physical space and focuses on the analysis of the network as a form of organization, constructing the reticular map of the field of Spanish digital literature with a special focus on the relationship between peripheries and centers. Licheng Xie, from Lancaster University, in "If DeLillo was an E-Lit Writer: DeLillo's Language as Visual Art in the Digital Age" studies how the digital works and DeLillo's novel emphasize the fragility of language and simulate the situations where readers play with language outside its original semantic frame. In the ninth article, "Digitizing Literary Text: Aims and Objectives", Eman Younis, from Beit Berl College, makes a comparison between the original, print version of the poem "The Dice Player" by the Palestinian poet Mahmoud Darwish, as published in his final collection *I Don't Want this Poem to End* (2002), and the digital version presented by the Egyptian animator Nissmah Roshdy in 2016. The following article "Analysing e-lit as a Literature Work, Is it Possible?" is a contribution from Yolanda de Gregorio, Universidad de Cádiz, Spain, in which the interactive novella App, *Pry*, is analysed to point out if this new literary work can be analysed as the traditional works. To conclude, Virginia Barratt, Australian researcher and artist – who used to be a member of the first cyberfeminist collective, VNS Matrix-closes the issue with poetics and experimentation with "Cyberfeminist Timelords" an edited transcript of a work presented for the 4S conference 2018.