Teaching electronic literature using electronic literature
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ABSTRACT

This article contains the transcript of the closing keynote lecture of the international conference "Teaching Digital Literature", given on July 26, 2019. Scott Rettberg provides an overview of his latest book, *Electronic Literature* (2018), and describes his experiences teaching electronic literature in various programmes. In the final section, the text discusses how electronic literature can be taught in different contexts, including Literary Studies, Creative Writing, as a critical approach to Digital Culture, and as a Digital Humanities discipline.

KEYWORDS

electronic literature; digital literary genres; teaching.

RESUMO

Este artigo contém a transcrição da conferência de encerramento do colóquio internacional "Ensino da Literatura Digital", proferida no dia 26 de julho de 2019. Scott Rettberg faz uma apresentação geral do seu livro mais recente, *Electronic Literature* (2018), e descreve a sua experiência de ensino de literatura eletrónica em vários cursos. Na secção final, o texto contém sugestões sobre o ensino da literatura eletrónica em diferentes contextos, incluindo nos domínios dos Estudos Literários e da Escrita Criativa, e ainda como uma abordagem crítica à Cultura Digital e como disciplina de Humanidades Digitais.

PALAVRAS-CHAVE

literatura eletrónica; géneros literários digitais; ensino.

RESUMEN

Este artículo contiene la transcripción de la ponencia de clausura de la conferencia internacional "Enseñanza de la literatura digital", impartida el 26 de julio de 2019. Scott Rettberg hace una presentación de su último libro, *Electronic Literature* (2018), y describe sus experiencias en la enseñanza de literatura electrónica en varios programas. En la sección final, el texto ofrece algunas ideas sobre cómo se puede enseñar la literatura electrónica en diferentes contextos, incluidos los estudios literarios, la escritura creativa, y también como un enfoque crítico sobre la cultura digital y como disciplina de humanidades digitales.

PALABRAS CLAVE

literatura electrónica; géneros literarios digitales; enseñanza.

T hank you for the invitation to come here and talk to you for what I think is really an important conference.[1] I actually had submitted an abstract as soon as I saw the call, because I think this is such an important topic, because we have many gatherings about electronic literature, but there haven't been many yet focused specifically on teaching electronic literature. So, it has been great the last couple of days to hear from people who are actually sort of in the trenches, trying this out with students and exploring a bunch of different concepts. And I hope it will continue.

Mainly, what I want to talk to you about today is my recently published book, *Electronic Literature*[2], and this comes out of teaching electronic literature for 20 years and really not having a text[3]. So, what I really wanted to do was to put together a book that would look at the history and genres of electronic literature and, rather than focusing narrowly on one specific phenomena, to try to address as much of the field as possible in a way that would invite people who were sort of unfamiliar with electronic literature into it. And also, a book that—just selfishly—I could use in the courses that I teach to introduce my students to it.

As Manuel Portela said[4], I just put this slide in earlier this week because I was very excited last week to win the N. Katherine Hayles Award, which means a lot to me, and Katherine Hayles is one of the most renowned scholars in the field, and she has been a great influence on my career. I edited the first electronic literature collection with her, and her book, 10 years ago, is titled *Electronic Literature: New Horizons for the Literary*. And this was, in some ways, one of the first books to try to bridge the gap between traditional literary studies and electronic literature. So, when I titled my book *Electronic Literature*, with no "*New Horizons*", people were first little surprised: 'Isn't that Kate's title?' And I said, 'Well, yes, but what I really want to do is look at electronic literature, not as a new horizon, but 10 years on, a decade on,

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when we are looking at a really rather large corpus of work, a large body of work, an international field, a practice.' So, even though I was initially opposed to the idea of the man on the moon that my publishers pushed for the cover, but once I thought about Hayles' *New Horizons for the Literary*, it seemed appropriate to place an astronaut on the moon, as it were, sort of beyond those new horizons into the present.

During this talk, I am hoping to do three things: I want to provide you with an overview of my book, I want to share some of my experiences teaching electronic literature in different contexts, and I want to offer up some ideas of how electronic literature can be taught in different contexts – so: Literary Studies, Creative Writing, as a sort of critical approach to Digital Culture, and as a Digital Humanities discipline.

I start out the book by asking people to imagine a book, to imagine a book as a technology, and think about the properties of the book. The book is a technology that took a long time to develop. There are these different aspects of a technological apparatus to it that took a lot of thinking to develop the codex book. And so appreciate that every time we are opening a book, we are looking at a reading technology. And then I ask them to

Imagine that the book were different, imagine it offered other affordances and material properties. Imagine that instead of turning pages, you could make any word in the book a link to some other part of the book or even to some other book. Imagine it were bound on a spool, so that you could enter and exit anywhere; a book without beginning or end. Imagine what you would do with that as a storyteller. Imagine what it would mean if every time you put the book up on the shelf, the words on the book shifted order and rearranged themselves. Would it be the same book? What would you do with that as a poet? Imagine if, when you pulled the book down from the shelf and opened up the first page, the book asked you in what direction you wanted to go, and would not begin to tell a story until you responded. Imagine if the book were a conversation, a novel that you had to talk to.

Imagine that, as you read a poem on the page of the book, the words jumped off the page into three-dimensional space and began flying around the room, shifting form and regrouping in the physical environment. Imagine that when you opened the book, it was filled with threads connecting it to all the other books in your library, which would make it possible to pull part of another book right into the text of the one you were reading.

Imagine if the book could read the newspaper and change its content depending on the time of the day or the weather, or the season. Imagine if you opened the book and found all of those of your friends who were reading the book at the same time leaving their comments in the margins. Imagine that when you opened the book, those same friends were all writing the book simultaneously. Imagine the book is a network, always on, always connected, and always

changing. Imagine what you could do as a reader. Imagine what you could do as a writer. Imagine the book as a networked computer.[5]

So, the main approach that I am taking in the book is somewhat controversial, in that it is somewhat traditional. I am writing about genre. Now, why genre? Some people say: 'Well, that's not cutting edge. That's not new. This goes back to ideas of formalism and structuralism that stretch back at least a century.' But this comes out of my experience teaching that it makes logical sense to say: 'All right, when we look at this group of objects together, what are their commonalities?' It gives us a basis for comparing things to each other as a basis for understanding and moving past the interface.

Thinking about genre, though, in electronic literature, one is always going to have what one might say *threads of practice*, rather than traditional genres, and one is going to oftentimes see many different threads of practice within the same work. Also, when we think about genre, we are going to be thinking both about literary genre and about technological genre, which is a different thing in that the technological material properties of the form shape its poetics in a different way.

The other thing that I encourage people to think about throughout this book is the cultural context in which both the technology and the work is produced. So, traditionally people have talked about electronic literature as *avant-garde*. This was the cutting-edge hypertext, 1990's vision, reinventing the word. And instead, I encourage people in a way to think: 'OK, yes, this is responding to the *avant-garde*, and when we look at these genres, we are going to see the marks of history of the *avant-garde*.' But you might say, in a way, we are looking at a "*garde derrière*", to quote my friend Talan Memmott, in the sense that the authors who are working in these genres are taking some practices from experimental literature and art of the 20th century and then adapting them into a new technological context and doing different things with them.

Many other writers – Manuel Portela is a notable one – have commented on this, and I think a lot of Portuguese scholars have also noted this, that there is a connecting thread between experimental literature from the 20th century and the things that people are doing now with computers. And those connecting thread might also make it a bit easier for us to understand e-lit.

The other reason why I am emphasizing this approach is that if you do not know your history and if you say we are inventing something new completely every time, you are just reinventing the wheel unnecessarily. So, if you know your history, then you know where you are coming from. And

5 RETTBERG, Scott (2019). *Electronic Literature*. Cambridge: Polity. 1–2.

there are two traditional approaches to literary studies. One is to say, 'let's focus on the rupture, let's focus on how this breaks with tradition'. The other approach is to focus on continuity and to say 'how are we understanding these things passing together in time and responding to each other?' And that is maybe more of the thread that I am focusing on, because I believe that while rupture is exciting, continuity is the basis for building a field.

So, this book really is a toolbox. It is meant to be used, it is meant to be applied in the classroom, and it is meant to, in some ways, help people get over some of their hang-ups about where these things are coming from; also, their pretensions that they are reinventing a future that is already past. I focus on what I think are five essential genres in five of the main chapters.

- **Combinatory poetics**: the oldest sort of thread of computational literature, arguably stretching back to, at least, the 1950s;
- **Hypertext fiction**: the first one that gained widespread critical attention, boomed and then maybe withered a bit in the early 2000s;
- **Interactive fiction**: a form that stretches back to the earliest computer games that were made textually, where the player responded using text and has been a tradition that continued, and then other forms that use game vernaculars;
- **Kinetic and interactive poetry**: something where we have in Portugal certainly a long tradition that stretches back to visual poetry, concrete poetry, other forms of visual poetry on the page;
- And **network writing**: writing practices that are specific to the network context.

So, I'm going very quickly march through the contents of the book, just to give you a quick impression. I'm not going to highlight everything here.

In the first chapter[6] we look at these ideas of genre, we look at the history of theoretical, critical and analytical work in the field, to really establish a sense of the field and we discuss why would we want to go about reading electronic literature? What are the strengths of this approach and what are the things that we do not usually think about, for students in particular, that this offers us?

Then[7], we look at combinatory poetics. We start with the context, the artistic context and the history. We look at the idea of procedural syntactic generation systems, we look at more contemporary because this really is a tradition that you can look at over the course of more than fifty years. We look at contemporary forms, like bots that generate text—not including those used to manipulate elections—but those that are specifically meant for poetry and

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6 Chapter 1 – "Genres of Electronic Literature" (1-19).
7 Chapter 2 – "Combinatory Poetics" (20-53).

new forms of generative poetry – like David Jhave Johnston's ReRites project [*Big-Data Poetry*], which uses neural nets to generate poetry.

Hypertext fiction[8]: the reason why this form attracted so much critical attention early on is that it really does spring from literary modernism and postmodernism, and in particular I focus in the book, on metafiction and reflexivity – something again Manuel Portela also considers – with the medium. Then we look at the sort of evolution of hypertext as a technology. It is obviously been a very important technology, if you think about it, and maybe not too many people do think about this consciously, but when you log into a Web page, the first four letters you type are HTTP and that stands for "Hypertext Transfer Protocol". And HTML is "Hypertext Markup Language". So, hypertext, in addition to being form that we can think of in literary contexts, is also the basis of the World Wide Web, and many computational systems. Then we look at first-generation hypertext, which were pre-web. There was a lot of work done before the Web, and then, as it moved on to the Web.

Interactive fiction[9]: we start with the earliest text adventure games. And the interesting thing that happened was this was a booming industry in IF for a short period of time, then graphics cards came along, *Space Invaders* came along, and suddenly what was really a game form based on writing, and an industry around it, dropped out. But a lot of people loves these games and missed these games, and developed their own platforms, developed their own language for writing adventure games, and this sort of amateur community took shape and kept developing this form and then indeed developing it much more interesting literary ways. We look at some of the features of these types of games and some of the possibilities that they offer, and this interesting resurgence and recombination with hypertext that has happened in the form of Twine games. And then we look at some of the ways that artists are just using game platforms more generally now as literary platforms.

Kinetic poetry[10] is, again, a form that is rooted in literary tradition coming out of the 20th century *avant-garde*... and we can, again, go back more than one hundred years looking at concrete poetry, Symbolism, Futurism, Lettrism, visual poetry, some sound poetry practices, even title sequences – this is something John Cayley has written about – before we move into early work in digital poetry – of course, again, I would mention Pedro Barbosa and other Portuguese authors who were very cutting-edge in both combinatory and kinetic poetry, very early on. And then I spend some time just looking at how particular technological platforms shaped the poetics of kinetic and visual poetry over time, because that is an important interaction. And I consider how we balance movement and interactivity with meaning in digital poetry.

Finally[11], some of the most exciting forms are particular to the network. Writers have been saying 'OK, we developed all these new writing and communication technologies, how are they changing the way that we write? But,

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8 Chapter 3 – "Hypertext Fiction" (54-86).
9 Chapter 4 – "Interactive Fiction and Other Gamelike Forms" (87-117).
10 Chapter 5 – "Kinetic and Interactive Poetry" (118-151).
11 Chapter 6 - "Network Writing" (152-182).

also, how do they offer us new forms for storytelling, new forms for poetry?' So, things like codework, which are sort of assemblages of human and machine language, or Flarf, which is poetry that is generated using search engines in different ways, early examples of fictions that were wrapped around the conventions of home pages, email, novels, fictional blogs, fictions that take place on Twitter, different kinds of online writing communities, different forms of collective narrative projects, and netprov, or network based improvisation. And something that I think is really important right now is the idea of network critique. In other words, because electronic literature includes reflective literary artefacts, in some ways it is the best form for us to look at and comprehend changes that are happening in the way that we think and communicate as a result of living on the network, changes that might be happening too fast, that probably are happening too quickly for us to stand back and process and understand. And I think many of the most interesting works of electronic literature are doing exactly just that.

The last chapter[12], to be honest, is structured the way it is because my publisher told me I could only have 200 pages and I was already about 20000 words over on word count. So, this became an "omnibus chapter", where I look at a number of different forms that combine different elements of the core genres discussed in the book. So, locative narrative – these are narratives that are situated in physical space and physical environments where you actually go to places and you get a section of a story or interact with a story in a physical environment; interactive textual installations – see Roberto Simanowski's talk opening keynote[13], where he discussed some of these installations that use text as a material, arguably meaningfully or not meaningfully; see also some of the sort of work that I have been doing in recent years using some of the techniques from electronic literature in cinema contexts, and there are examples, again, of expanded cinema going back to the 1960s at least, but thinking about how to expand the cinematic environment, how to play stories and things like CAVE 3-D, virtual reality theatre environments, or how to use combinatory poetics to create versions of films – such as *Penelope*[14], a film that recombines and writes sonnets, that will be different every single time the film runs, but using some of those techniques. And then, as we begin to think about how we use augmented reality for literature. The chapter also includes a little bit about the research apparatus that we have developed in the field of electronic literature. That has been essential because when we started doing this, libraries did not know what to do with these objects. And it is a big problem for us as we teach it, because a lot of these works last about five years before they face technological obsolescence. So, as a field, we have had to develop an apparatus to document

12 Chapter 7 - "Divergent Streams" (183-204)

13 Roberto Simanowski's opening keynote lecture for TDLIC 2019, *Literature and Digital Media. Notes on Theory and Aesthetics*, is also published in this issue of *MATLIT – Materialities of Literature*. The video of this lecture is available at https://www.youtube.com/watch?v=5BpC1Ac8ouk.

14 ALBORNOZ, Alejandro, Coover, Roderick, and Rettberg, Scott (2018). *Penelope*. https://elmcip.net/creative-work/penelope.

and to archive and to track and map this field, just so that we can be able to teach the material that we saw ten years ago to students who are just beginning to encounter it today. And, I'll mention, one of the most important databases is here in Portugal: Rui Torres and Manuel Portela both work on the PO.EX archive [15] , which links experimental Portuguese poetry and Portuguese electronic literature.

And then, finally, some thoughts on the future of e-lit and on teaching. I want to just go through really quickly four different ways that I have taught and do teach electronic literature and think about how it can be taught in these contexts.

1. One is part of a Literary Studies curriculum. You can teach it as a Literature course, an English, or Portuguese, or a Foreign Language course, or a Comparative Literature course... And some of these can be combined, obviously.
2. You can teach it as a Creative Writing course, specifically where the main focus is on creating media production, and on making stories and poetry in digital media.
3. One of the things I have been doing a bit more recently in my graduate courses in Digital Media Aesthetics that are a little bit more critically focused, as an illustration of particular theoretical concepts. We read theoretical books, but then we will also bring in some of these objects and analyze them together, and I will talk about how we do that.
4. And then finally we teach a Digital Humanities course where our students work on research infrastructure and learn about the broader digital humanities while working with the ELMCIP Electronic Literature Knowledge Base.

So, these are four courses that we currently teach at the University of Bergen, where I was able to work electronic literature in, over the course of my years there. The first one is a course in Digital Genres. In this course, our students look at computer games, digital art, and electronic literature, in a way that is informed by thinking about genre, comparing the techniques and modalities, and modes of expression in art, literature and games together. So, there is a module in electronic literature in there.

We have a course called Electronic Literature, where typically they will look at three genres of electronic literature and it will be pretty much divided almost evenly in half sort of history and critical approaches, where I am using this book now. But then the other half is creative practice and, actually, in the last few years, I have moved towards a focus their creative work: their final projects are actually creative projects that they produce. And it has been a good move: the students really get a lot out of that, I think.

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15 https://po-ex.net.

Then there is our Digital Humanities course and our graduate seminar in Digital Media Aesthetics, which changes topics each term.

I have been teaching this sort of material for 17 years. When I first started, I was teaching in New Jersey – I got hired to start a New Media Studies track in a literature program. People speaking at this conference have mentioned a lot of barriers in talking about teaching electronic literature, so I thought I would mention an interesting reversal that occurred. When I was teaching in the literature program, 15 years or so years ago, students would look at e-lit and say [reading slide] "How do I work this thing? It is like a complicated gizmo. What does this have to do with reading? Can't we just read novels and poetry? This is a literature class, man." So, they were hung up on, you know, how do I get through…, how do I traverse this thing to get to the story or to get to the poetry?

Now, our students in the Digital Culture program at UiB have somewhat more diverse backgrounds, but they have some technological training and they think a lot about digital culture more broadly, but they will say things like when they first encountered these [barriers to reading electronic literature]: "Interesting interface. Nice use of JavaScript and CSS. Let me describe to you how this is working as a computer program. You want me to draw a map and explain how it works for you? I can do that. But why do you want me to read it? I can get it without reading anything."

I think now the trouble for me, or the challenge for me, is to get the students to actually read. It is no longer explaining to them how to traverse the textual machine – it is how to read e-lit as literature.

I'm going to go quickly through teaching combinatory poetics: because I want to get to the creative part of it. But I want to just show really quickly an example of how when I am talking about these things, and in this book, how we weave in literary tradition and technological tradition. When I am talking about combinatory poetics, I will often start with examples further back. I will often start with the Dada and Tristan Tzara's great instructions on how "To Make A Dadaist Poem", which is essentially to take a newspaper, cut out the pieces, cut, cut, cut out words from the article, put them into a paper bag, shake them gently, dump them on the floor, remove one word at a time, and arrange those words in the order that you get them, into lines and then copy conscientiously. And now [quoting Tzara's text] "The poem will be like you." You will have become an infinitely original writer with a charming sensitivity, although still "misunderstood by the common people."

And I do this, I start out the section on combinatory poetics and I actually do exercise this with students. The remarkable thing, though, is when you take a newspaper from contemporary time, from a given day, and you

cut out words from it, and you rearrange them, something interesting happens in that—because it has that shared context and that shared moment in time—it performs an act of defamiliarization. And the poem, most of the time, turns out to be read as interesting poetry. So, there is something to this characteristic of aleatory poetics that often works.

Of course, the surrealists expanded on this. They were trying to access the logic of dreams and they did all sorts of different collective writing experiments or trying to write from the unconscious in different ways. One of the famous ones, of course, is the "Exquisite Corpse", either with text or drawing, one person will write a line or start drawing, fold it over, pass it to the next person, and pass it on until you filled up a page, and then you will end up with a poem that was written by everyone and written by no one, and that involved elements of chance. And many of these – for instance, there is a great collection of these at the Art Institute of Chicago – are actually quite remarkable, in that they are these art objects that no one thought of consciously but are nonetheless fascinating.

A more famous writer who used a similar method was the novelist William S. Burroughs, where he would cut up both texts that he had written and audiotapes, and he would splice in newspaper articles and novels, like *Naked Lunch*. But when he was commenting on his friend and colleague Brion Gysin's cut-up technique, he pointed out that [reads]: "The best writing almost always seems done by accident, but writers, until the cut-up method was made explicit [...], had no way to produce the accident of spontaneity", that you couldn't just sit down and "will spontaneity. But you can introduce unpredictable, spontaneous factors with a pair of scissors."[16]

I imitated a classic Queneau's work in the combinatory film that I was showing[17]—it is Raymond Queneau's, the Oulipian poet, *Hundred Thousand Billion Poems*. This is a work where it is 10 to the 14th power of poem, by virtue of the fact that Queneau wrote out 10 sonnets, but with lines flexible enough that they could interact within the line places with any of the other sonnets written there, and then cut the page into strips. So, instead of 10 sonnets, you suddenly had a hundred thousand billion songs.

The OULIPO is very important in that the idea of constrained writing is very important for combinatory poetics. Harry Matthews is a writer who developed a bunch of interesting constraints. The OULIPO is a group of writers and mathematicians who get together in Paris for dinner once a month and deliver challenges to each other. There are some very famous ones, like Georges Perec's "write a novel without using the letter E", which is *La Disparition*, in French, *A Void* in English. But he [Harry Matthews] makes this

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16 Quoting "The Cut-Up Method of Brion Gysin", by William S. Burroughs.
17 Reference to the film *Penelope* (2018).

point that constraints have a creative effect in that we become so busy concentrating on the effect, this sort of object of desire to us, that if [reads] "we find ourselves doing and saying things we never would have otherwise, things that often turn out to be exactly what we need to reach our goal"[18]. I was friends with Harry, and he told me the story of how Perec came up with the idea for *A Void*, the novel without the letter E, which was that he really wanted to write about his parents' disappearance during the Holocaust, but it was too emotionally close to him for him to be able to write effectively about it, until he focused on this constraint of not using the letter E.

And of course, I won't talk much about all this, but computer programs are inherently constrained, right? That is essentially what one is doing when one is writing a computer program: one is writing a set of constraints that the computer program will then perform.

There is a whole tradition of performance scripts such as the Fluxus. One very simple example – and this might sound like: 'Why would a literature professor cite these?', is *Mad-Lib*s—something that probably some of you are familiar with from your childhood, where you have a given text and you have a set of types of words that you can substitute in and out. Many text generators, slot-style combinatory generators, work according to similar principles. And that childish joy of discovery that you can get from these automated substitutions is, I think, is something that is familiar to many of us.

I will not go into all of these examples, but there is also a really close connection with the generative music tradition. One wonderful thing I found out a few years ago that I did not realize was that, for instance, David Bowie used generative software to write many of his lyrics. So if anybody says that electronic literature can never going to be a popular art form, I give you David Bowie, ladies and gentlemen!

The history of this stretches back as technological experimentation. Many of the people who wrote the first generators were not setting out to be digital poets. Probably the first one, by Christopher Strachey, was the love letter generator. And if we look at a text like this saying [reads]:

"Duck, duck,
you are my little affection: my beautiful appetite: my eager hunger. My covetous love lusts for your infatuation. My yearning anxiously clings to your fellow feeling.

Yours eagerly.
M. U. C."

18 Quoting MATHEWS, Harry (1997). "Translation and the Oulipo: The Case of the Persevering Maltese", *electronic book review*, March 1, 1997 http://electronicbookreview.com/essay/translation-and-the-oulipo-the-case-of-the-persevering-maltese/.

Now, this does not seem like a really effective love letter, necessarily. It seems in many ways like a parody of a love letter. An interesting thing about Christopher Strachey is he was rumored to be a lover of Alan Turing. Actually, he was a gay man in the 1950s in the UK, so there is a bit of speculation around this piece, that one of the things that he was doing was making fun of courtship traditions or heterosexual conventions. And of course, "M. U. C." is actually the Manchester University Computer.

Another work from the 1950s is *Stochastiche Text*, by Theo Lutz (1959). One of the fascinating things about this is that Lutz was just setting out to see if he could write a computer program that would generate aleatory texts. However, the poetry is actually interesting. One reason for this is that he was using titles from Kafka novels as the corpus of his text. But you end up with some really interesting texts as a result of this very simple form of generation.

Probably the first poet explicitly to say: 'I want to set out and create something that generates feasible poems', was Alison Knowles, who worked with the composer James Tenney, who had a residency at Xerox Labs, in 1967, and said to Knowles: 'Hey, why don't we try to make something literary with this computer?' So, they wrote the computer program *The House of Dust*, that generates very simple poems that describe a place: "a house of dust", "to the sea." And then it has another element – lighting, and then "inhabited by" *x*. The fascinating thing about this is they use this as the basis for many other art projects, including, in addition to the poem, some physical installations. So, they would generate these and then build architectural installations. They also did a poetry drop where they got a helicopter and they printed off about 10000 pages of this generated poem and then dropped it from the helicopter to a waiting audience. A fascinating, absurdist project.

Probably not the first – I think Pedro Barbosa would disagree – but what was claimed to be the first book written by a computer, *The Policeman's Beard Is Half Constructed* by *Racter* (1984) is a fascinating work. People did not believe when this was published that it was actually generated by a computer program. They said 'Oh, you must have been cheating...' It was a pretty good program, with a complex grammar – generative grammar – but it would produce poems like [reads]:

Slowly I dream of flying. I observe turnpikes and streets
studded with bushes. Coldly my soaring widens my awareness.
To guide myself I determinedly start to kill my pleasure during
the time that hours and milliseconds pass away. Aid me in this
and soaring is formidable, do not and wining is unhinged.

They never revealed, although people have found bits of the code of *Racter* enough to sort of prove that it was being generated. And there are different models of generation that I discuss in the book. This was one of the more complex ones, but another interesting thing is – I think what made this book so interesting – was both the text, but then those fabulous collages that were done by an artist that tried to interpret the generative poetry.

There is also a tradition in story generation in the first [volume of the] *Electronic Literature Collection.* This a very simple generator that I often use in class, called *Storyland* [by Nanette Wylde, 2002 (version 1) and 2004 (version 2)], that is fascinating. I think it generates the sort of the basic minimalist elements of a story you could possibly put together and call a story. And yet they actually read pretty well for stories of about six lines long and demonstrate that you do not really need much to hang a plot on for people to interpret it as a story.

I'm going to skip ahead here because, otherwise, I'm not going to have time to get to the teaching. But I just want to point out that there are many different ways that people are thinking of where does the art reside in a work of combinatory poetics. So, for example, Nick Montfort has done a series of obscurely famous generators called the *PPG256 Series* (2012), where he is taking an idea from computer programming, which is the idea of the elegant program, the program that wastes no space, that has the minimalist use of code possible. And then each of these are Perl programs that generate poetry of a kind. I am not a huge fan of the actual output, but the remarkable thing about this is what can you do with just 256 letters to produce a program that generates a poetry that can be read by humans as poetry.

And I won't go through Nick Montfort's and Stephanie Strickland's *Sea and Spar Between* (2012)[19] here but it is an excellent example of how a fairly minimal set of instructions, paired with a well-curated corpus of language, can result in a generator that produces an enormous output of engaging verse.

One of the generative pieces I did was called the *Frequency Poetry Generator*[20]. For this project, I wrote 2000 constrained lines of a poem using only the 200 most used words in the English language. I wrote ten lines, beginning with each of these words and then I wrote a program in Ruby that essentially asks you what type of poem you'd like. (Would you like a haiku? Would you like a sonnet? Would you like a snowball?) There are about 15 different types of poetry included, and then the computer program assembles, selects from those 2000 lines, and delivers you a new poem in that given form. The interesting thing is the traditional formal poems are almost always bad – if one

tries to do a Shakespearean sonnet or something like that with this – but I realized that because of the character counting capabilities, one could actually invent some new form. So, for example, snowballs worked well, but forms like "two towers" is one of these where the computer program selects a number of characters to build one tower and another tower and then creates this kind of poem that you read both across and down. And there is plenty more to say about that piece, but I will not now.

Evolution, by Johannes Heldén[21] and Håkon Jonson, is a fascinating work where they were trying to take the style of Johannes Heldén the human poet, and he said: 'What I'm trying to do is to make myself irrelevant, so we're going to create a computer program that studies my work and mimics my style, and then I'll stop writing poetry'. So, maybe in the end it does not exactly do that, but it is a fascinating program.

Then there are network-based pieces like the *Pentametron* Twitter account[22], which is a bot that finds couplets [reading different tweets on the slide]:

"My profile looks exotic. Who agrees?"
"I absolutely love Alicia Keys."

"Can you imagine heading back in time?"
"High resolution picture of a lime."

... or the similar *Times Haiku*[23], at the *New York Times*, which finds haikus within the articles, within given text articles from the Times, it finds naturally occurring haiku and then publishes them every once in a while, so these are just accidental haiku that a computer program automatically recognizes.

And then there is Jhave's recent work, *Big-Data Poetry* (2018)[24], which I think is going to be sort of highlighting a new trend where we can sort of feed neural nets, a corpus of text. And then what Jhave did was for, I think six months or eight months, every morning he woke up to a huge body of text produced by the computer, and then spent the day editing these computer poems. So, he was writing, he was interacting with them, but then at the end of the day, he would have, say, ten new poems, and at the end of each month, he published a book of poetry that was co-authored by him and by the machine. And I think this is a sort of really interesting reversal of roles here, where the human becomes the text editor.

21 http://www.textevolution.net.
22 https://twitter.com/pentametron.
23 https://haiku.nytimes.com.
24 http://bdp.glia.ca.

All right, onto teaching! Some core ideas that I use when I am teaching e-lit:

One, is that I try to inform the writing of e-lit by reading e-lit and developing knowledge of existing works and genres. I think not enough people who teach electronic literature as creative writing actually do this. I think people sort of leap in and just say: 'OK, here's a tool, make something with it', whereas I think it is useful to step back and say: 'OK, what's been done before? Let's get an awareness of the territory that we are working in'.

- I also emphasize collaborative practice. Most of my work over many years has been made with other people. I love to collaborate and I think one of the great joys of the network in digital media is that it is really social, writing e-lit can be a social practice of co-creation. I try to allow students who are strong in particular skill-sets (students who are really good at writing, and others who are good at editing, somebody is a visual artist, a musician, some people are stronger at using code), and part of the reason why we do things in groups a lot is to say 'All right, well, you focus on that. Use your particular talents.'

- I try to emphasize ideas, stories; poetics over techniques, in other words. I am not teaching a course in a given software platform, I am not teaching people to use Photoshop or C++, Python, CSS, etc. I will try to support that and send them places and give them opportunities to learn these things. But what I want the students to focus on is what they are making and how to think about and form a scalable model of how they can tell a story.

- So, we try to also spend quite a bit of the time looking at the work that they are doing and talking about it together, sharing it, workshopping together, you know, not just professor to student, but together as a group.

- And I am not trying to create a professional class of e-lit writers. It would be virtually impossible to do so, because very few people actually get paid to be e-lit writers. So, I am always trying to think what are students are going to learn as a result of doing this – digital literacy, things like project management, things like how to encounter digital media as a creative space that you have some ownership of, rather than one that you are just sort of fed content from. Because most of my students will go on and do other things. And that is certainly the case in our Digital Culture program, we are not trying to get people published in *The New Yorker*. We are trying to teach people how to function critically and creatively in digital environments

So, really quickly, four examples of assignments that I do:

1. The first one is to "Hack a Gorge".
2. The second one is to work with interactive narrative in Twine.

3.   Another one is to create a locative narrative.
4.   And the [fourth] is to perform a NetProv.

So, the story behind *Taroko Gorge* and *Tokyo Garage...* (2009)[25]: Nick Monfort, a close friend of mine, created a poetry generator – that is a nature poetry generator – called *Taroko Gorge*, about a national park in Taiwan, that I really liked because this sort of inversion it performs – 'I'm going to create a sort of machine-based form that creates a poem about waterfalls and gently flows over time and continues generating this nature poetry.'

And I love the elegance of the code. When I looked at the code that Nick Monfort had written – there is always very tight, minimalistic code in Nick's work– and I looked at the language and I said 'Jeez, that is not very much language! What if I decided to improve it?' So, what I did as sort of a joke for Nick, primarily to amuse that audience of one, was I took Nick's *Toroko Gorge* and changed all of the vocabulary, changed some very basic elements of the way the poem displays on the page and the speed at which it displays, retitled it to *Tokyo Garage,* and then crossed out Nick's name and put mine under it (2009)[26] and published it on the Internet. And then I sent an email to Nick saying "Nick, look what I did. I improved your poem." And he loved that! So, what I did is I took his minimalist vocabulary and then made it very much maximalist. And I took the idea of a poem about nature and I turned it into a poem about cities and cosmopolitanism, and about Tokyo, or an idea of Tokyo.

The interesting thing that happened after this was: I published this, that Nick wrote a blog post about it; a few weeks later, J.R. Carpenter did the same thing, except that she wrote hers called *Gorge*, so this became a poetry generator about eating and gorging yourself. Someone else then [Mark Sample], a few weeks later, wrote *Takei, George*, about the *Star Trek* hero. Someone else [Eric Snodgrass] wrote one about the Beatles, *Yoko Engorged*, sort of a pornographic poem about the Beatles, and John and Yoko in bed. And then this kept going, and going, and going, and before we knew it, I think about 30 different authors had done this and it became its own genre in a way – this very simple computer program that spawned all these other versions.

So, I do that as an assignment with my class now, and it is a great assignment, and they all do something different with it. It is a very low entry-level assignment. If they are good at imagery, if they are good at language, if they are good at coding, they can expand upon this code base in different ways, and they all come out with their own version of the poetry generator. So, a great thing about this assignment ("Hacking a Gorge")– anyone who

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25 https://nickm.com/taroko_gorge/.
26 http://retts.net/tokyogarage.html.

can work with words can do it. It exposes students to code without demanding immediate background knowledge of programming. It really effectively demonstrates the poetic power of recombination, it can scale up and down for different skill levels, and it shows – and this is something I emphasize in the book – that writing, coding, and playing are very intimately related. All these things are... coding is a form of writing; writing is a form of playing.

Twine–It is a great platform. I will not talk too much about it. José Dias[27] gave an excellent talk on teaching with Twine. One wonderful thing about Twine: it is an open source software platform. There was an early piece of hypertext software called Storyspace, that was developed pre-Web, it was very much proprietary, but had some great features that you do not actually have if you were just authoring HTML in the Web. Chris Klimas said 'I like these features. I am going to create an open source software that integrates the best features of Storyspace, or similar features, such as visual mapping of text. And I am also going to be thinking about this as not only a hypertext writing system, but also as an interactive fiction writing system.'

I've just started using this in the last couple of years. My students have leapt into it. It is an immediate writing environment that they encounter and whether they think they are writers or not, when they start, they really discover, as José Dias said, they discover a voice somehow. And it is very conducive to writing. So, my students came up with some really brilliant projects doing all sorts of different things. There was a murder mystery on a train, there were different sorts of children's fictions, there were mythological tales... A lot of my students are international. I told them they could write in French if they want. I can speak French, not Portuguese, ... I can read French, and Norwegian. One student wanted to work with educational technology. So, he wrote a story that was a basic story, a children's story, but it also was teaching math and basic reading skills as a game, and he was trying to map it on to some official Norwegian education objectives. So, it was just remarkable the kinds of things they came up with.

A great thing about Twine, again, is the low learning curve: you do not need a lot to get into it, but it is highly extensible, so if you have programming knowledge, you can build upon that. It integrates the best features of early software and elements of interactive fiction software, and exposes students to those conventions, so they read the chapters on hypertext interactive fiction, they have some background, and they leap into Twine. It is

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27 See the paper presented by José Carlos Dias, "The writer, the detective and Twine: interactive fiction and the teaching of Portuguese as a foreign language", which is also published in this issue of *MATLIT: Materialities of Literature*.

immediately interactive, you can embed images and sounds, so there is mul-timedia. It is immediately publishable, shareable, and there is this large, young, enthusiastic user community. So, students have questions about some technical aspect of Twine, I just say, 'You know, go to the Twine com-munity', and they find people who respond to them and support them.

Another sort of assignment – again, I won't go into it too much – but this is what we did when Mark Marino was a visiting researcher with us, and we have done a number of these different sort of locative narratives. And these can be very simple technologically. The thing I like about them is I say, 'OK, we've been spending all this time in front of the screen: take a notebook, take a pen, go out in the city, and I want you to write a fragment of a story set in a particular space. And then we can use technology to map these things together.' One really simple way we did with this project was Google Maps. We could also use like QR codes and stickers where: one takes his phone out and sees a QR code on a public space and gets delivered a chunk of story. One could use AR to do this. But building stories together in a phys-ical space and sort of getting that idea that electronic literature does not need to mean 'I'm just diving into the screen', but it could mean we are get-ting out into the world and telling stories in new ways. So, there are concrete sets of constraints. You need to work in a physical environment, get to think beyond the screen, and it is ideal, in a way, for teams of people to do this.

The other great form that we use a lot – I do it, again, with Mark Marino and Rob Wittig, I do this every semester – is Netprovs. Marino and Wittig encourage people from universities all over the world to join in and just writers to join in. I play along with these a lot. You can, of course, generate your own, but the idea is network-based improvisational writing in every-day platforms. So, saying, 'All right, let's start by exploring a new platform (the most common one that they use is Twitter, or Facebook, or Instagram, or Periscope, or any of these sorts of TikTok, and these kinds of platforms that people, and especially young people, are using every day), but let us come out, let us have a premise that we start with'. So, for instance, the one we did with my students last term and with some of their students was "Be-hind Your Back". The idea of this was that the social media platform one uses every day suddenly logs you out and you can't log into it, but you keep getting notifications and people are commenting on, but you cannot see the comments. So, you don't know exactly what is going on. This was sort of the premise. And then we generated characters, with a little character genera-tor. Each student hit a button and got a randomly generated character, that had a certain background and certain concerns, certain things they were worrying about. And then we all jumped into the Twitter flow, using the same hashtag. And all of a sudden, we are joining this story that is being

collaboratively developed live by, sometimes, you know, 50 or 100 people. Each Netprov has a separate topic – they are sort of steered in various ways in that plot elements will be introduced by the people directing the netprov. But if you have not tried them both for your students, or just for yourself I would say, it is great fun, and a great example of collective writing, another form I also write about in the book.

So, we are running pretty close until the end now, but I need to underline some different things about this assignment that I think are useful: we are considering the constraints, effects, and uses of social media. This also allows us to look at social media from a critical standpoint; often the themes are critical of our everyday practices on the internet; there is a kind of roleplaying happening, it is responsive. Something that is really rewarding for students, I think, is that they are not just getting feedback from Professor Rettberg, or whoever, but from other people are writing back to them and playing along with them. It complicates this idea of digital genre and that it is like: 'Is it fiction? Is it a performance? Is it a play? Is it a novel? Is it just Twitter? What does it mean?' And then it gives us a sort of environment for reflective critique.

The sorts of things that I do in our Digital Media Aesthetic course: I will often take a given theme that we will think about, for example the relationship between environmental studies and the digital humanities. And then we might read books, for instance, like Jussi Parikka's critique of the effects of computation on the geology of our planet[28], or Elizabeth Swanstrom's *Animal, Vegetable, Digital* (2016), or Soren Pold's *The Metainterface* (2018). And these are works that are theoretical and deal with themes, but also often deal with digital artworks. And I might use the ones that are discussed in other books[29] or bring in new ones and say 'All right, let's look at this theoretical framework and then let's look at these artefacts and think about how we write about these within that frame'. Or, for instance, if we are going to look at social media and large internet companies from a critical standpoint, we might look at one of Roberto's books[30] or *The Googlization of Everything* (2011)[31] or the novel *The Circle* by Dave Eggers (2013), and then look at projects like the *American Psycho* project[32] that was discussed during Roberto's keynote[33] or John Cayley and Daniel Howe's *How It Is in Common Tongues* (2012), which is actually virtually identical to the text of Samuel Beckett's *How It Is*, except that an algorithm searched for and found all of the phrases

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28 *A Geology of Media*, 2015.
29 *Toxi*City*, by Roderick Coover and Scott Rettberg, and to *Snow*, by Shelley Jackson.
30 Roberto Simanowski, *Data Love: The Seduction and Betrayal of Digital Technologies* (2016).
31 By Siva Vaidhyanathan.
32 By Mimi Cabell and Jason Huff (2012).
33 *Cf.* footnote n. 4.

in the book on Google searches, and then cites those individually, thus demonstrating both the sort of absurdity of the copyright regime and also how Google encloses, and, in a sense, owns language; or *AdNauseam* by Daniel Howe et al. (2015), which is a plug-in that clicks on every ad on a given page, and then delivers those images back to you, creating a profile for you, of who Facebook and the advertisers think you are; or the netprov *I Work for The Web*[34] (2015), which was a project where all the characters realized that they were spending most of their time clicking and liking things and putting a lot of labor into this, and suddenly there was an uprising of the common web content producers, who decided to go on strike with the Webworkers Union to protest their treatment.

And then finally – and this is something that I know is done, at least I know that route has similar things with some of these students – there is a lot of technological infrastructure involved in electronic literature. We host one of the largest databases – open access research databases – on electronic literature at the University of Bergen, the ELMCIP Electronic Literature Knowledge Base, which I encourage you to use and to contribute to. But we have a course where we are studying the digital humanities broadly, but then students work very specifically with our database, both developing it and learning from it. So, they are contributing to the large-scale documentation of the field, they are learning about theory, debates, context of digital humanities, they are getting very specific research, training on databases and archives. And then what they do is they develop individual research collections, which are sort of mini-databases within the database that are based on research questions. Then, we teach them how to do some data mining and visualization using the database. So, a few examples of the types of research collections, and these were all done by students: I threw the ELMCIP page dedicated to the Brazilian Electronic Literature Collection for Luciana Gattass[35]. She developed a research question – she was a postdoc with us – on Brazilian Electronic Literature; also a great interview with Manuel [Portela] and Rui [Torres], done by Álvaro Seiça, that is part of the Portuguese Electronic Literature Collection. So, these are things that are in the wider database, but then they are a focused set of things, but also things that are thematic, like Hannah Ackerman's –

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34 By Rob Wittig and Mark Marino, with other contributors. *I Work for the Web* (2015)
   http://robwit.net/iwfw/
35 Luciana Gattass also presented a paper at the *Teaching Digital Literature International Conference*, on July 25, 2019, on the subject of "Presence and Electronic Literature" ("Presença e Literatura Eletrônica").

one of our current PhD students –, she is doing one that is specifically on interventions of digital texts in physical spaces[36].

And then for their final projects what the students will do is develop a specific research question, like there was a Philosophy student who took the course who was saying 'I'm really interested in Wittgenstein's concept of "language games", and what I'd like to do is go through the database and map given works using vocabulary from Wittgenstein, and then visualize to see how Wittgenstein's terms might apply to ludic works on the Web'.

These are four different approaches [in] different types of courses. So, it is one of the things I want to emphasize, and I emphasize in the book, is that there is not a cookie cutter way of teaching electronic literature. But in fact, this body of material is rich in many different types of teaching contexts.

I have not mentioned the primary and secondary teaching context, but some recommendations I would have in addition to universities: if you are teaching primary or secondary, consider inviting authors and digital artists to the schools, just to expose students to work; make workshops where students get engaged in the creation in digital media. There is a whole subset of work that we did, a project called Kid E-Lit[37] – and I know there is one happening in Portugal now as well, that Rui [Torres] mentioned[38], and there have been similar projects in France and other places –, but we did a series of exhibitions across the Nordic countries of just really innovative interactive e-books and other types of digital literature made specifically for children, and that is beginning to develop as a field within children's literature as well.

Again, it is important to think about all this stuff and then think about all these different contexts – digital literacy, art, children's literature, English and foreign language – where this work can be material of use.

Just to conclude, for those who are not so familiar with the field, there is a bunch of electronic literature out there, available open-access, for free. The Electronic Literature Collections[39], published by the Electronic Literature Organization, are a great place to start. There have been three volumes now, each with more than, I think 50 works – the last one was immense. They went crazy – the number of works that they published! But to get a sense of the

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36 See ELMCIP page "Reimagining the City: Interventions of Digital Texts in Physical Spaces" https://elmcip.net/research-collection/reimagining-city-interventions-digital-texts-physical-spaces.

37 Reference to Kid-E-Lit – Nordic Electronic Literature for Children. http://www.kidelit.dk

38 Rui Torres also gave a talk at TDLIC 2019, on July 25, 2019, in a panel called "*A ciberliteratura (re)velada: da alquimia à ecocrítica e outras perspectivas pedagógicas*" ("Cyberliterature (un)veiled: from alchemy to ecocriticism, and other pedagogical perspectives"), in which he referenced the project "Murals and Literature: A Digital Creation in an Educational Context" https://www.uc.pt/fluc/clp/inv/proj/meddig/murlit/.

39 https://collection.eliterature.org/

diversity of approaches that writers are taking, this is a great place to go. When we had the ELMCIP project, 2010 to 2013, we put out the first specifically trans-European collection that included a number of works in many different languages[40]. Of course, the Electronic Literature Knowledge Base[41] welcomes your records of academic papers and creative works. Anyone working in the field can ask for an account in the database and create a record of a presentation and creative and critical works. And finally, a bonus that goes along with this book, that is available for free: I worked with my graduate students: for every chapter of this book, we created a separate research collection within the knowledge base[42] that has links to all of the documentation of all the creative works, all the critical writing referenced, all of the authors that were referenced in those individual chapters… So, if anyone is thinking about teaching this book, that is a great additional supplement to use when one is teaching electronic literature.

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40 https://anthology.elmcip.net/
41 https://elmcip.net/knowledgebase
42 The seven research collections, related to each chapter of Scott Rettberg's *Electronic Literature* (2019) can be found at https://elmcip.net/node/13149.