# Wandering Machines Narrativity in Generative Art

#### Vladimir Todorović

University of Western Australia, Faculty of Arts, Business, Law and Education, School of Design, Perth.

vladimir.todorovic@gmail.com

#### Dejan Grba

Nanyang Technological University, School of Art Design and Media, Singapore.

dejan.grba@gmail.com

#### \_\_\_

#### **ABSTRACT**

The development of automatic narrative systems has been largely driven by the engineering tendency to anthropomorphize the machine logic so they can 'tell stories' similar to how humans do. From the artists' perspective, however, the experimentation with their media is often more important than the (plausibility of) storytelling, and it often unfolds in non-verbal events that have a potential to generate diverse narratives through the experience of the audience. We discuss the emergence of the creative practices that enrich the poetic repertoire of new media art by playfully utilizing the machine flaws, irregularities, errors and systemic technical imperfections thus revealing the human biases and fallacies entangled with technology. One of the implications of these practices is that if Al research opens up a broader space in which a machine could achieve its own authorial voice, our concept and understanding of the narrative would need to be reconsidered.

#### **KEYWORDS**

Algorithm; Artificial Intelligence; Error; Generative Art; Machine Learning; Narrativity; New Media Art; Programming; Software.

#### 1 | INTRODUCTION

This paper examines the ways in which generative narrative artworks contribute to the creative and expressive repertoire of new media art. It focuses on the complex interrelatedness between the procedural (algorithmic) thinking which is one of the key elements in generative art, and the narrativity as one of the human universals (Brown, 1991). We explore different perspectives of generative narrativity by discussing the art projects which exemplify the artists' abilities to transcend and/or question the conceptual, expressive and aesthetic limits of instruction—or code-based art. We observe this theme primarily from the aspect of the artists' creative thinking and critical evaluation. The aim of our study is to show that the

expressive, emotional and cognitive impact of generative art expands our understanding of narrativity by including the audience's anticipation and comprehension of the system logic and algorithms used in creation of the work. We believe that the anthropomorphizing of intelligent narrative machines often results in the impoverished narratives or pale imitations of the existing storytelling modes and methods. Experimenting with the tools to create and the ways to recognize the authentic authorial voices of the machines can open up new fields of research in the arts and in the sciences, which can help us define the more robust concept of narrativity, its roles, limitations, and potentials.

In this text, we perceive generative art as a heterogeneous realm of artistic approaches based upon combining the predefined elements with different factors of unpredictability in conceptualizing, producing and presenting the artwork (Dorin et al., 2012). For our consideration of narratives in generative art, we combine Abbott's 'bare minimum' definition of narrative as a "representation of an event or series of events" (Abbott, 2008). Generative projects discussed in this text primarily feature the systems which function procedurally, autonomously, largely rely on chance, and treat narrative as the essential element of the artwork. These projects elevate the artists' need to inventively address and design the supporting structures for impactful and experiential transference of narrativity between an art piece and its audience.

#### 2 | DECEITFUL AUTOMATA

#### 2.1 CONCEALING THE MACHINIC IMPERFECTIONS

Amongst a range of elaborate mechanical inventions in the 18<sup>th</sup> and 19<sup>th</sup> centuries—such as Jacques Vauconson's *Flute Player* (1730's), Jaquet Droz's *Automata* (1768-1774) or Joseph Faber's talking machine *Euphonia* (1845)—John Clark's *The Eureka* (1845) stands out as an early predecessor of

generative narrative systems (Hall, 2017). It could produce Latin verses with a pull of a lever, through the mechanism that utilized a complex system of pulleys, gears and weights in order to automate generation of the verses. Because of the strict rules of Latin hexameter, this wooden machine was capable of flawlessly randomizing words and arranging them in the plausible output. A significant degree of the success, popularity and impact of The Eureka and many other automata of that time relied on the novelty that accompanied the artificial generation of the verses (Hall, 2007). The spectacular presentations and the audience's surprise with these artificial systems emulating the activities previously exclusive to humans was instrumental in concealing many of their functional imperfections and logical inconsistencies.

A somewhat ambivalent approach to concealing the machinic imperfections reflects in the early computer art due to the variety of the creators' motivations and intentions, and the public reception of their work. Many computer art pioneers were focused on the conceptual, syntactical and semantic software experiments rather than showing off publicly. Some were extending the technical capabilities of the software and hardware systems, some were testing out the theory of generative grammar, and some were exploring the concept of authorship and searching for the new tools and methods of poetic expression (Higgins & Kahn, 2012).

Besides his pioneering work in the early development of computer music and computer games, British scientist Christopher Strachey had anticipated the computer experiments with literature. Strachey's program Love Letters (1952) constructed four sentence long love notes using the random number generator of Ferranti Mark I computer (Sephton, n.d.). The system was capable of combining salutations, nouns, adverbs, adjectives and verbs from an appropriately compiled lexical database. Although semantically inarticulate, the sentences were syntactically acceptable and plausible. The love letters looked like they had been written by a lowfluency English speaking person or as if they had been produced by some of contemporary online machine-translation services. This project, even though it was programmed on a powerful computer system at that time, retains both the logic and the complexity close to Clark's Eureka.

Seven years later, German mathematician Theo Lutz created a stochastic text generator which constructed more or less plausible sentence pairs using a 100-word lexicon from Franz Kafka's novel *The Castle* (1926). *Tape Mark 1* software, created by Nanni Balestrini, produced generative poetry by recombining the words of the short quotes taken from Lao Tzu's *Tao Te Ching*, Michihito Hachiya's *Hiroshima Diary* and Paul Goldwin's *The Mystery of the Elevator*. However, these poems were

semantically plausible thanks to the subsequent hand editing of punctuation and grammar (Funkhouser, 2007; Clements, 2013).

Computer experiments in organizing and manipulating text continued during the 1960s and 1970s by the engineers, scientists and artists of various interests and profiles who worked with the stochastic lexicons and with syntactical rules in order to achieve the plausibility through semantic coherence (Franke, 1985).

#### 2.2 PLAYING (WITH) THE IMPERFECTIONS

One of the first chatbots—*ELIZA*—written by Joseph Weizenbaum in 1964, pushed the performance and the audience's experience of generative narratives a step further. Designed by applying the basic rules of Rogerian psychotherapy to Alan Turing's Imitation Game (Miller, 2001), ELIZA appropriated, repeated and reordered parts of the user's input, modifying and altering between pools of possible reply options. Although this early attempt on creating computationbased simulation of artificial intelligence never managed to pass the Turing test, many users, starting with Weizenbaum's secretary, attributed the humanlike feelings and emotions to ELIZA while interacting with it (Weizenbaum, 1966). While discussing the relationship between a player and the computer game algorithm in his book Gaming, Alexander Galloway (2006) outlined that some games have the "ability to arrest the desires of the operator in a sort of poetry of the algorithm". With *ELIZA* and with other interactive generative systems, the users tend to submit their desires to the logic of the machine.

The video game Façade (2005), by Michael Mateas and Andrew Stern, uses a chatbot system as the core element of the gameplay. Chatting with two virtual characters who are also a couple, the player can improve or diminish their relationship. Like with the Choose Your Own Adventure book series, in Façade we are facing a limited number of predefined branches and endings of the story. This project-aims to establish a plausible narrative experience by hiding the errors that ensue from the system limitations. When we probe such 'intelligent' system, it responds with a relatively small subset from the pool of preprogrammed events. Hence, in just a few questions we can make it reveal its 'intelligence' by choosing a wrong event.

Similarly, when we try out contemporary AI chatbots or virtual assistants such as Siri, Alexa or Google Assistant, we often make an effort to establish a relation with these systems by tricking them into giving out the unexpected results, into making mistakes that will surprise us. Although these systems are designed to mask their imperfections behind the efficiency of generating a wide range of variable answers, we often play with them in order to experience authenticity in their flaws.

#### 3 | SIGNAL-PROCESSING MACHINES

#### 3.1 UNTHINKING THE NARRATION

While some generative systems are designed to hide their deficiencies and generate plausible narratives, many generative narrative artworks do not conceal their imperfections, but instead they function like signal-processing machines.

In automatic writing (without thinking, logical reasoning or consciously manipulating the content) our mind, thoughts and memories become the elements of a signal processor. André Breton and Philippe Soupault developed this method in the early 20th century so they could capture the uncontrolled and random thoughts, as in:

The great curtains of the sky draw open. A buzzing protests this hasty departure. Who can run so softly? The names lose their faces. The street becomes a deserted track (Breton & Soupault, 1985).

They believed that recording the uncensored thoughts generated by our subconscious mind and memories facilitated the access to the unique and deep levels of consciousness. If we start modifying these signals with logical reasoning, the results will look manipulated, edited or 'deformed'. Since the degree and the consistency of the author's ability to unthink the writing process is impossible to verify, the poetic emergence in automatic writing easily becomes the matter of trust and fascination, similar to the mechanical narrative machines of the 18<sup>th</sup> and 19<sup>th</sup> century.

#### **3.2 SELECTIVE SEMANTICS**

In new media generative art, various qualitative phenomenological aspects of everyday life can be selectively transformed or transcoded into new forms and outcomes. For example, the online profit-oriented processual recognition of linguistic and behavioral patterns was deftly subverted by Mimi Cabell and Jason Huff in American Psycho (2012). The artists mutually sent via Gmail all the pages of Bret Easton Ellis' novel American Psycho (1991), one page per email, and correspondingly annotated the original text with the Google ads generated with each email. Then they erased the original text leaving only the chapter titles and the ads as footnotes. Printed and bound in a book format, American Psycho recursively employs the early 21st century business and marketing strategies based upon data-mining to process the narrative about the paroxysms of business culture in the early 21st century.

The filtering/processing machine in Jonathan Harris's and Greg Hochmuth's project *Network Effect* (2015) also uses the supercut format to wield the power of generated narratives. The artists have designed a web interface that offers a series of clickable

keywords which trigger an ever-changing stream of related online videos. For example, a click on the keyword 'kiss' will initiate a stream of automatically shuffled videos of kissing, accompanied with the information about that keyword such as how many people are kissing now, the use of the word 'kiss' in Google books, etc. However, the clicking experience is limited to between 6 and 10 minutes per day depending on the life expectancy of the country in which the website is accessed. By selectively allowing the external elements to influence its performance, this artwork reminds us that it represents a new form of (fictional) reality.

To make Watching Night of the Living Dead (2018), Dave Dyment collected the scenes from hundreds of movies and TV shows in which people are watching George Romero's film Night of the Living Dead (1968). He arranged them sequentially along the editing track of the original. The complete Romero's zombie classic is reconstructed and featured as the element of mise-en-scène of many other films and TV programs [1]. Generative filtering in this supercut is pseudo-intelligent or semi-autonomous because it follows the original narrative logic of Romero's The Night of the Living Dead, but the effect is still surprising due to the richness and unexpectedness of the source material.

For their installation *Listening Post* (2001-2002), Ben Rubin and Mark Hansen have developed a system that filters content from thousands of Internet chat rooms in real-time and displays the processed material on 200 LED screens. As we watch the filtered messages appear on screens, we also hear different computer-synthesized produced with customized text-to-speech software. Sometimes the system filters only the messages that start with "I am" and then we can hear the snippets: "I am 18", "I am from Latvia", "I am hot!", etc. The artists have defined how this system works, but it is the machine that performs autonomously and once the audience understands its logic, the experience becomes even more meaningful and impactful.

#### **4 | EMBRACING THE UNINTELLIGENCE**

#### 4.1 THE APPEAL OF SYSTEM LOGIC

The early 20<sup>th</sup> century artists who experimented with generative narratives were also discovering the alternative ways of connecting with the audience. Their relatively simple generative mechanisms produced fragmented and cryptic narratives which required an additional layer in order to motivate and help the audience experience the work. In Dadaist poetry, for example, the artists were focusing primarily on designing a system rather than on creating logical or plausible narratives.

In Dada Manifesto of Feeble Love and Bitter Love (1917), Tristan Tzara wrote the instructions for

making a Dadaist poem: take a newspaper article, cut out its words with scissors, mix the words in a bag, pick up word by word randomly, and assemble them in a succession (Tzara, 1981). In order to engage with the artwork, we need to understand the basic rules of the system. While we read, we slowly enter the magic circle of engagement as we picture the bag, the newspaper cut outs, the sounds of slicing scissors and other elements of the system. If we don't envision the operation of this simple generative platform, our interaction with the piece will be limited. In this type of work, for both the author and the reader, experiencing the technological, procedural and machinic becomes more significant than comprehending the semiotic qualities of the generated narrative.

In one of the early works by Oulipo group—A Hundred Thousand Billion Poems (1961)—Raymond Queneau created a simple system which can generate 10<sup>14</sup> different poems. It consisted of ten sonnets, with each verse cut out as a separate strip. While interacting with this system, we have to value its logical properties on the same level on which we engage with its generated outcomes and it would be 'wrong' to only focus on the plausibility of poetry.

Nick Montfort's World Clock (2013) is a 246-page book generated by 169 lines of code. Its structure resembles Queneau's Exercises in Style (1947) in which 99 versions of one story are written in different styles. In World Clock, there are incidents/variations of the story. Each incident starts by explaining the time and place of the event, then illustrating a random character, and finishing the story with a different action, randomly selected from an array of predetermined actions. Darius Kazemi, one of the jurors in the computer-generated novel competition NaNoGenMo, states that reading World Clock is more an exercise in endurance than indulging yourself in quality of the story (Dzieza, 2014).

#### **4.2 GENERATING IMAGINARY NARRATIVES**

Even when a generative system features no linguistic material, it has a potential to become narrative thanks to human affinity for establishing mental associations through comparison, abstraction, categorization, analogies and metaphors. Nam June Paik's early generative experiments with sound and video rely on this principle. His sound installation Fluxusobjekt Random Access (1962-1963),for example, borrowing its title and concept from computer technology, elegantly deconstructs the dictate of linear succession in reproduction of recorded sound. The installation comprised two sets of magnetic audio tape removed from the reel and cut in various lengths. One set was assembled on the wall in a wild composition, and another in a parallel grid on a horizontal looped conveyor. A detached playback head with extended wiring enabled the audience to choose the parts of tape but also the speed in which

to slide the head and play the sounds (Decker-Phillips, 2010).

Paik's approach to hacking and generative transcoding also resonates conceptually with a number of technically sophisticated projects in interactive art, such as Ken Feingold's installations which humorously engage the dumbness, clumsiness and mistakes of modern automata. In *If/Then* (2001), for example, two robotic dummy heads, both controlled by their own speech synthesis and speech recognition algorithms, are clumsily trying to establish a meaningful dialogue in a series of questions and answers they make consecutively. The inanity of their exchange continuously shifts between funny and the uncanny reflecting our (in)ability to embrace their technical imperfections.

With simple generative narrative systems such as Dadaist poetry, the audience's engagement with the work is facilitated by knowing the operational logic of the system. With the signal-processing, transcoding and interpretative generative machines, the audience experiences a more robust artwork which doesn't require as much exposition. The audience, however, still searches for the errors, irregularities, surprises, perhaps for some deep levels of yet undiscovered machine consciousness and its poetic aura.

#### **5 | MACHINE LEARNING MISTAKES**

#### 5.1 THE IMPOVERISHED AURA

Developing technically more complex generative narrative systems, computer scientists have been attempting to make the machines that can narrate like humans. In multiple computer science research projects, they have been capable of rendering the impoverished narratives or weak imitations of the stories created by humans. This is partially due to our incomplete understanding of human (verbal) cognition and its capacities, which need to be mathematically modeled, turned into algorithmic frameworks and coded into software, but which are coevolving with human-made emulations of cognitive functions (Mindell, 2015).

James Meehan's *Tale-Spin* (1976) was a generative narrative system which kept track of how characters of the story felt, what action they could perform, or what their environment was like. The audience could influence the development of the story by choosing different options through the interface of *Tale-Spin*. Although Meehan spent a lot of time optimizing the system output by planning the unfolding of generated narratives, his system kept generating mis-spun stories which were often unintentionally humorous and attracted more attention than the well-spun ones:

Henry Ant was thirsty. He walked over to the river bank where his good friend Bill Bird was sitting. Henry slipped and fell in the river. Gravity drowned (Wardrip-Fruin, 2006). In the misplaced sentence 'Gravity drowned.' we may start noticing that this machine attains its unique poetics as it reminds us that it exists by malfunctioning.

Mark Riedl's Scheherazade (2012) is a machine learning system that attempts to generate plausible fictional stories about real-world situations by sampling a database of crowdsourced stories in 'the space defined by the domain model' (Riedl et al., 2015). Riedl's team had noticed that if they used a random story generation algorithm, the readers have per reported 12.5 mistakes story, Scheherazade generated stories that have resulted in a median of 3 human-detected mistakes (Guzdial, 2015). By reducing the frequency of detectable mistakes, the designers of Scheherazade have created a narrative system that aims to be errorless and indistinguishable from human-made stories. To achieve this, however, they relied on human manual laborers who fed the data to the machine storyteller.

Neural-Storyteller, created by Jamie Ryan Kiros in 2015 is a software which generates short stories through the semantic analysis of pictures. It identifies the forms, objects, actions and moods in the images uploaded by the user, categorizes and links them to the motifs and keywords which are then processed by the secondary narrative module. This module learns its writing techniques by analyzing contents of 11,038 romance novels (Kiros, 2015; Zhu, 2015). We can experience Neural-Storyteller's unique 'sensibility' or impoverished aura by comparing the often-erroneous system output (generated story) with its input (image). For example, the software would falsely interpret a photograph of two sumo wrestlers as the two persons in their bikinis, hugging.

Similarly, Ross Goodwin's application *word.camera* (2015) translates input photographs into narratives. The algorithm extracts tags from the images using Clarifai's convolutional neural networks and expands them into paragraphs using a lexical relations database ConceptNet and a flexible template system. It selects what to write by detecting concepts in the image and relating them to other concepts in the ConceptNet database. The template system enables the code to build sentences that connect those concepts together (Merchant, 2015).

These systems improve their accuracy by reiteration and/or by crowd-labor. Weather they imitate the human narration perfectly or not makes no difference while they are performing. They could be viewed as the purified, highly efficient forms of automatic writing, or through our affinity to imagine the poetry of the machine, they could remind us that "the ghost has always been in the machine" (Jacobsohn, 2019).

#### **5.2 SYNTHESIZED NARRATIVITY**

Before the expansion of the research in Al and ML around the 2010s, the structural and/or the formal

elements that convey the narrative meaning become malleable through sophisticated search techniques. For example, in sCrAmBIEd?HaCkZ! (2006) Sven König explored the concept of real-time procedural audiovisual synthesis from the arbitrary sample pool that elevates the narrative structure. sCrAmBIEd?HaCkZ! applies the psychoacoustic techniques to calculate the spectrum signatures of the sound snippets from the stored video material and saves them in a multidimensional database that is searched in real-time to mimic any input sound by playing the best-matching audio snippets and their corresponding videos.

Procedural audiovisual synthesis was brought to another level in the application of machine learning by Parag Kumar Mital in his PhD project *YouTube Smash Up* (2012-2014). Each week, this online software would take the #1 YouTube video of the week and then it would resynthesize it by using an algorithm that collages the appropriate fragments of sonic and visual material coming from the remaining Top 10 YouTube videos (Mital, 2014). The system generates surreal animated effects, visually resembling Arcimboldo's grotesque pareidolic compositions.

A more demanding, machine-based synthesis of coherent film structure and narrative was tackled by Oscar Sharp and Ross Goodwin in Sunspring (2016). Well versed in natural language processing and neural networks, Goodwin programmed a long shortterm memory recurrent neural network and, for the learning stage, supplied it with a number of the 1980s and 1990s sci-fi movie screenplays found on the Internet. The software, which appropriately 'named' itself Benjamin, generated the screenplay as well as the screen directions around the given prompts. Sharp produced Sunspring accordingly. The film brims with awkward lines and plot inconsistencies, but it qualified with the top ten festival entries, inspiring one of the judges to say 'I'll give them top marks if they promise never to do this again' (Newitz, 2016). Sunspring playfully reverses the 'Deep Content' technology of What is My Movie web service, which analyzes transcripts, audiovisual patterns and any form of data-feed that describes the video content itself, automatically converts it into advanced metadata which is then processed by a machine learning system that matches the metadata with the natural language queries (Valossa, 2016). The experience of watching Sunspring takes us back to the Dadaist poetry experiments. If we don't take into consideration that the screenplay was written by an AI, it would be difficult to engage with Sunspring. It makes evident that even the relatively advanced Al systems err when attempting to replicate the plausibility of well-structured human-written stories.

### **5.3 EVASIVE MEANING MAKING**

Recent AI research projects and experiments have been successful in generating narratives in which meaningful elements are dispersed throughout syntactically correct and even aesthetically pleasing passages, but are not relevant for the construction of meaning in the whole text [2]. These include fake online reviews for products and services (Yao et al., 2017), fake novels such as Botnik Studio's *Harry Potter and the Portrait of What Looked Like a Large Pile of Ash* (2017) (Bassett, 2017), and OpenAl's fake news and works of fiction (Hearn, 2019).

Similar to the 18th and 19th centuries narrative automata, they stir up fascination, spectacle, concern and controversy. However, they are interfacing not only our intuitive grasp of the general grammar in the language(s) we speak natively, but also our higher cognitive ability to select, synthesize—and assess the essential structure (meaning) from a broader narrative construct. For a skilled, motivated and contextually well-informed reader, it is easy to detect meaninglessness in the written material. Conversely, an uninformed, emotionally susceptible and/or ideologically biased reader, may be willing to absorb, accept, approve and/or enjoy the syntactically correct but semantically incoherent, weak or empty material. This has been demonstrated before the recent breakthroughs in deep learning by the Sokal affair in 1996 (Sokal & Bricmont, 1998) and by Andrew C. Bulhak's Postmodernism Generator software (since 1996) (Bulhak, 1996).

Supplying the muffled, undefined or elusive discursive material to our evolved tendency for extracting meaning from the formally correct but not necessarily meaningful patterns, the automated narrative systems can produce the illusion of semantic coherence, plausibility or authority. Skillfully exploited by profit-motivated social media platforms and translated into hardware-software infrastructure. our inertia, ignorance, narcissism and other fallacies (un)willingly become the generative fuel of narratives: explicit (searches, clicks, selfies, stories, news), and implicit (our behavior patterns, intentions, desires, profiles). These narrative mechanisms have been reverse-engineered by Vladan Joler and SHARE Lab in their Exploitation Forensics project (2017). It snapshots the algorithmic logic and functionality of various layers in contemporary Internet infrastructure, from the network topologies and the architecture of social networking platforms (Facebook) to the production, consumption and revenue generation complex on Amazon.com (nn, 2017).

Unmasking these manifestations of the evasive meaning making can help us be more vigilant and critical in our appreciation of narratives in and about the arts, and our culture in general. Rendering our participatory-exploitative narratives through impressive data visualizations, the *Exploitation Forensics* suggests that our fetishization of privacy is the only thing that protects us from realizing that the stories of us (as told by the metadata and by the algorithmic systems logic) are often much more

colorful and interesting than the stories we tell about ourselves (Rosenberg, 2018). As long as we avoid dealing with our delusion of self-importance, we will fall prey to the socially constructed apparatuses with mundane interests.

## 6 | LEARNING FROM THE MACHINE LEARNING MISTAKES

The human authors' self-awareness informs the cogency and affects the appeal of their narratives. Our Al systems do not have this feature of human mind (relevant to the concept of artificial general intelligence), and we presently do not know if they ever will. Human intelligence is not understood sufficiently and clearly enough so that we can capture it with formally robust sets of definitions and rules, which is the condition for mathematical modeling and computer emulation of any phenomenon or process. However, because of this epistemic uncertainty combined with our fear of the unknown, every time a task-specific technical system outperforms some of physical abilities, cognitive functions or manifestations of creativity by imitation, simulation or in some other way, we conclude that from now on we will be (unsuccessfully) competing with technology in that domain (Pinker, 2018). It is difficult for us to discern that this new functionality emancipates our intelligence, so we naively ascribe it with competitiveness and subjugation rather than making an effort to objectively detect and correct in it the elusive human weaknesses and problematic human interests that reflect in every technology (Winner, 1980; Lee, 2018).

Successful generative narrative artworks are powerful tools for blending the elements of unrelated perceptual and/or cognitive matrices into the new matrices of meaning. They tell us stories but, more importantly, they stimulate our imagination and motivate creativity by revealing or suggesting their background thinking processes in an engaging way. The joy and fun in the reception of generative art projects come from the encouragement of viewer's own ability to build concepts, stories and predictions from the available information about the unfolding phenomena. Similarly to computer software, they encapsulate specific intellectual energy which can be engaged implicitly or explicitly and incite new, often surprising, intellectual configurations (Grba, 2015). By reiterating the simple question: what is a generative narrative?, artworks inspire amazement with storytelling, and at the same time broaden our critical understanding of the concept of narrativity by reminding us that the ideas are basically the networks of other ideas, and that we make our ideas and they make us in return (Johnson, 2014).

It would therefore be counterproductive to rely only on generative systems that imitate human narrators (Aarseth, 1997), and to push exclusively for the anthropomorphic Al design which emulates typical

cognitive human traits and functions. The anthropomorphic AI strategy is pragmatic and logical, but it promotes the translation of our psychological fallacies, stereotypes and tainted political ideasfrom apophenia and pareidolia to racism and eugenics—through algorithms into software with wide reaching and highly consequential functionality (Grba, 2015, p. 206-208; Aguera y Arcas et al., 2017; 2018). The anthropomorphic trend in Al also diverts us from researching the more open-ended systems whose erratic authorial flavor can spark our creative imagination and offer new insights into the mental processes behind our narratives. As the artist and Al researcher Tokui Nao remarked, Artificial Intelligence should be not considered as the emulation of human intelligence but rather as an Alternative Intelligence with its specific set of functional logics (Nao, 2016).

The creative approach to mistakes and imperfections in generative narrativity relates to the Latin meaning of the noun error "wandering about", so making mistakes implies deviating from the regular, usual or expected paths, modes of expression and behavior. When the designers of AI storytelling platforms get more comfortable to freely explore the non-human modes of narrativity, to smartly select and embrace of the unforeseen imperfections peculiarities of the system logic (instead of anthropomorphizing them intentionally or unintentionally), we will move a step further toward expanding our expressive potentials and our understanding of language as the key interface for human-human, human-machine and machinemachine relations.

The engaging narratives bring up our feeling of presence, discovery, examination, and evaluation of our own sense of meaning. By elevating the dynamics of storytelling as a verbal representation of states, scenes or situations, they also enrich our appreciation of the fact that the narrative is always uniquely performative, the story always a series of unfolding events. As Google AI puts it:

it's all right here. everything is all right here. it's all right here. it's all right here. we are all right here. come here in five minutes.

#### **ENDNOTES**

- [1] Because of a mistake in its title card, George Romero's *Night of the Living Dead* has always been a public domain film with no licensing or royalty fees, which makes it an easy prey for the directors who need a cinematic backdrop in their scenes (Hosein, 2018).
- [2] We encounter this kind of seemingly sound, but semantically thin narratives in small talk, in political

parlance, in journalism, in wordy tech manuals, and in verbose fiction literature such as J.R.R. Tolkien's and Ursula K. Le Guin's sci-fi/fantasy novel series.

#### **REFERENCES**

- Aarseth, E. J. (1997). Cybertext: Perspectives on ergodic literature. JHU Press.
- Abbott, H. P. (2008). *The Cambridge introduction to narrative*. Cambridge University Press.
- Arcas, B. A., Mitchell, M., & Todorov, A. (2017, May 6). Physiognomy's New Clothes,'. *Medium*. [Blog post]. Retrieved from https://medium. com/@blaisea/physiognomys-new-clothesf2d4b59fdd6a.
- Arcas, B. A., Mitchell, M., & Todorov, A. (2018). Do algorithms reveal sexual orientation or just expose our stereotypes?. [Blog post]. Retrieved from https://medium.com/@blaisea/do-algorithms-reveal-sexual-orientation-or-justexpose-our-stereotypes-d998fafdf477.
- Bassett, J. (2017, December 14). A Bot Has Written a Harry Potter Book and It's Not a Classic. [Blog post]. Retrieved from https://www.nme.com/blogs/a-bot-has-written-a-harry-potter-book-and-its-beyond-terrible-2171167.
- Breton, A., Soupault, P., & Gascoyne, D. (1985). *The magnetic fields*. London: Atlas Press.
- Brown, D. E. (1991). Human universals, human nature & human culture. *Daedalus*, *133*(4), 47-54.
- Bulhak, A., & Larios, J. (1996). Postmodernism generator. *Communications from Elsewhere*.
- Clements, W. (2013). Tape Mark 1. Retrieved from http://www.in-vacua.com/cgi-bin/tapemark.pl.
- Decker-Phillips, E. (2010). *Paik video*. Barrytown/Station Hill Press.
- Dorin, A., McCabe, J., McCormack, J., Monro, G., & Whitelaw, M. (2012). A framework for understanding generative art. *Digital Creativity*, 23(3-4), 239-259.
- Dzieza, J. (2014, November 25). The strange world of computer-generated novels. Retrieved from http://www.theverge.com/2014/11/25/7276157/nanogenmo-robot-author-novel
- Franke, H. W. (1985). Computergraphik, Computerkunst. München: Bruckmann.
- Funkhouser, C. T., & Baldwin, S. (2007). *Prehistoric digital poetry: an archaeology of forms, 1959-1995*. The University of Alabama Press.
- Galloway, A. R. (2006). *Gaming: Essays on algorithmic culture*. Minneapolis, Minn: University of Minnesota Press.
- Grba, D. (2015). Get lucky: Cognitive aspects of generative art. In XIX Generative Art Conference Proceedings (pp. 200-213).
- Guzdial, M., Harrison, B., Li, B., & Riedl, M. (2015, June). Crowdsourcing Open Interactive Narrative. In *FDG*.

- Hall, J. D. (2007). Popular Prosody: Spectacle and the politics of Victorian versification. *NINETEEN CENT LIT*, 62(2), 222-249.
- Hall, J. D. (2017). Nineteenth-Century Verse and Technology: Machines of Meter. Springer, 115-119.
- Hearn, A. (2019). New Al fake text generator may be too dangerous to release, say creators. *The Guardian*.
- Higgins, H., & Kahn, D. (2012). *Mainframe* experimentalism: Early computing and the foundations of the digital arts. Univ of California Press
- Hosein, L. (2018, July 31), Night of the Living Dead Has a Scarier Story Than You Think...because Copyright Is Terrifying. CBC Arts. Retreived from https://www.cbc.ca/arts/night-of-the-living-dead-has-a-scarier-story-than-you-think-because-copyright-is-terrifying-1.4768307.
- Jacobsohn, M. (2019, July 24). A Slice of Learning from the Cake of Kaokoveld Culture. Daily Maverick. Retrieved from https://www.dailymaverick.co.za/article/2019-07-24-a-slice-of-learning-from-the-cake-of-kaokoveld-culture/.
- Johnson, S. (2014). How we got to now: Six innovations that made the modern world. Riverhead books.
- Kiros, R., Zhu, Y., Salakhutdinov, R. R., Zemel, R., Urtasun, R., Torralba, A., & Fidler, S. (2015). Skip-thought vectors. In *Advances in neural information processing systems* (pp. 3294-3302).
- Lee, K. F. (2018). Al superpowers: China, Silicon Valley, and the new world order. Houghton Mifflin Harcourt.
- Merchant, B. (2015). This App Translates Your Photos into Stories. Motherboard. Retrieved fromhttps://motherboard.vice.com/en\_us/article/8qx7q3/the-app-that-translates-your-pictures-into-words.
- Miller, G. (2001). The mating mind: How sexual choice shaped the evolution of human nature. Anchor. 352-353.
- Mindell, D. A. (2015). *Our robots, ourselves: Robotics and the myths of autonomy*. Viking Adult.170-178.
- Mital, Parag Kumar. (2014). *Computational Audiovisual Scene Synthesis*. Ph.D. thesis, Arts and Computational Technologies. Goldsmiths, University of London.
- Newitz, A. (2016, June 9). The Multiverse / Explorations & Meditations on Sci-Fi. Ars Technica.
- nn. (2017). SHARE Lab: Exploitation Forensics Press Release. Aksioma – Institute for Contemporary Art
  - http://www.aksioma.org/press/exploitation.foren sics.zip.

- Pinker, S. (2018). *Enlightenment now: The case for reason, science, humanism, and progress.* Penguin. 323-327.
- Riedl, M. O., Boyang L., Brent H., & Guzdial M. (2015). Scheherazade Story Generator. Georgia Tech GVU Center. Retrieved from https://gvu.gatech.edu/research/projects/scheherazade-story-generator.
- Rosenberg, A. (2018). How History Gets Things Wrong: The Neuroscience of Our Addiction to Stories. The MIT Press.
- Sokal, A. D., & Bricmont, J. (1998). *Intellectual impostures: postmodern philosophers' abuse of science* (pp. xiii-xiii). London: profile books.
- Sephton, M. (n.d.). Strachey, Christopher. "Loveletters" (1952). Retrieved from https://www.gingerbeardman.com/loveletter/
- Tzara, T. (1981). Dada manifesto on feeble love and bitter love. Seven Dada manifestos and Lampisteries. 31-48.
- Valossa. (2016). Description of Research. What Is My Movie. Retrieved from http://www.whatismymovie.com/about.
- Wardrip-Fruin, N. (2006). Expressive processing: On process-intensive literature and digital media. Brown University. 94-95.
- Weizenbaum, J. (1966). ELIZA—-a computer program for the study of natural language communication between man and machine. *Communications of the ACM*, 9(1), 36-45.
- Winner, L. (1980). "Do Artifacts Have Politics?" Daedalus, Modern Technology: Problem or Opportunity? Vol. 109, No. 1, 121-136.
- Yao, Y., Viswanath, B., Cryan, J., Zheng, H., & Zhao, B. Y. (2017, October). Automated crowdturfing attacks and defenses in online review systems. In *Proceedings of the 2017 ACM SIGSAC Conference on Computer and Communications Security* (pp. 1143-1158). ACM.
- Zhu, Y., Kiros, R., Zemel, R., Salakhutdinov, R., Urtasun, R., Torralba, A., & Fidler, S. (2015). Aligning books and movies: Towards story-like visual explanations by watching movies and reading books. In *Proceedings of the IEEE international conference on computer vision* (pp. 19-27).

#### **BIOGRAPHICAL INFORMATION**

Vladimir Todorović is a filmmaker, new media artist and educator. His projects have won several awards and have been shown at various festivals, exhibitions, museums and galleries including: HANIFF, Cottbus (28<sup>th</sup>, 21<sup>st</sup>), Visions du Reel (49<sup>th</sup>, 46<sup>th</sup>, 44<sup>th</sup>) Cinema du Reel (37<sup>th</sup>), Sarajevo FF, IFFR (42<sup>nd</sup>, 40<sup>th</sup> and 39<sup>th</sup>), Festival du Nouveau Cinema (42<sup>nd</sup>), BIFF, SGIFF, L'Alternativa, YIDFF, Siggraph, ISEA (2008,2006), Ars Electronica, Transmediale, Centre Pompidou, The Reina Sofia Museum (Madrid), and Japan Media Art Festival.

Dejan Grba's career has been unfolding through interrelated practice in media art, writing, education and curating. He has exhibited and lectured in Asia, Australia, North and South America and Europe, and his papers have been featured in new media art journals, books and conference proceedings. He is a Visiting Associate Professor at the School of Art Design and Media, Nanyang Technological University in Singapore. He is a Founding Chair of New Media department at the Faculty of Fine Arts in Belgrade, and an Associate Professor with Digital Art PhD Program at the Interdisciplinary Graduate Studies, University of the Arts in Belgrade.