

# A-poetic Technology. #GraphPoem and the Social Function of Computational Performance

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**Keywords:** computational poetry, performance, natural language processing, graph theory applications.

The *Graph Poem* project, started at University of Ottawa in 2014 and continued meanwhile both there and at UCLouvain, has developed computational poetry classifiers that are deployed in representing poetry corpora as network graphs which are, in their turn, analyzed for graph theory-reliant features that will reflect back on the corpora and the poems thereof. This paper is part of a forthcoming cluster of publications that takes our focus beyond the strict affiliation of computational analysis, natural language processing (NLP), and graph-theory applications and into a wider digital humanities (DH) context. This complementing direction explores the poetry and poetics of DH and a possible “plus-poetics” as manifest in programs and performances like ours or David Jhave Johnston’s *Big Data Poetry* (Tanasescu (2021)), the tightly-knit intercorrelation between digital writing, control, and “monstrous iconicity” in digital space and media (Tanasescu and Tanasescu (2021)), and the present writing aiming to foreground the social and community relevance and impact in digital space-based performances such as the Margento #GraphPoem EPoetry events presented at Digital Humanities Summer Institute (DHHSI) in 2019 and 2020.<sup>1</sup>

One of the concerns in our previous NLP publications was to make a point in favor of poetry’s relevance beyond the genre per se, in the wider framework of NLP and DH. For instance, the metaphor classifiers we developed trained on poetry and non-poetry data turned out to be better than the ones trained by other authors on just the latter or by us on just the former (Kesarwani et al. (2017)), which also helped with a deep-learning approach to metaphor (Tanasescu et al. (2018)), while important NLP instruments such as word embeddings trained on poetry corpora turned out to be better for any other text analysis purposes than other ‘household name’ ones (Tanasescu et al. (2018)).

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<sup>1</sup> See <https://bit.ly/2ASWDY1>; the recording of the #GraphPoem @ DHHSI 2020 performance can be watched here: <https://bit.ly/2NmK5j1>; for the automated #GraphPoem tweets at DHHSI 2019 and DHHSI 2020 search for the @GraphPoem bot’s profile page on Twitter.

In the present paper, we want to extend that argument regarding poetry's relevance 'beyond poetry' to the realm of the social and the political. In that respect, we find Jonas Andersson Schwarz's revisiting of the concept of *Umwelt* (in Uexküll's philosophy, cf. Schwarz (2018)) quite useful for our argument as it foregrounds nuanced notions of milieu and ecology that can correlate communities or social assemblies to various other kinds of ensembles. Digital space-based poetic corpora, for instance, are such ensembles, alongside the social ones, and can be better understood and worked on in contexts transgressing commonly accepted borders between the organic and the technical, as well as between the human and the machinic. In translating this notion to our world of artifacts, Schwarz draws on Johansson to highlight the fact that artefacts become ecological entities only as long as they are "attended to and used," thus becoming "as much an agent (co-agent) in the social ecology as is the organic human being" (Schwarz (2018), p. 66). We are particularly enticed by this fundamentally operational (or rather, as argued below, *performative*) and socially connecting nature of artifacts, especially in a framework whereby, in the footsteps of Alfred Gell, "the mediated environment prompts human self-understanding to take on *mental categorizations* that are isomorphic to this environment" (Schwarz (2018) 61, author's emphasis).

We take this ("human") self-understanding to be the poem's (self-)reading and (self-)performance as informed by its corpora and corporeal environment. Moreover, we see the corpus-based performance of the poem and the networked textualities thereof as potentially isomorphic to the societal connectivity and the radical approaches to community they are shaped by and/or feed back into. Our very concept of, and actual term, the *graph poem* (singular) refers to the multitude of poems in a corpus algorithmically analyzed and expanded as a network (i.e., mathematical 'graph') that together amount to, or rather asymptotically tend towards, a (locally) global encompassing poem. At the same time, every single node in such a network—every single poem indeed in the corpus—is informed and performed by that specific surrounding milieu of various (globally) local communities/subnetworks, or *Umwelt(s)*.

We will involve three key agents in our notion of performative networked sociality of poetry in digital culture: humans, poems (as performative inscriptions in digital space)<sup>2</sup>, and machines (as computationally implemented algorithms and artificial intelligence). While we do not believe that these agents are one and the same, we maintain that they deeply and intimately overlap in respects remarkably relevant to the (post)digital. And that overlapping is in our view made possible by the "isomorphism," in the quotation above, between "mental categorizations" and the mediated environment. Still, while those categorizations are for Schwarz—via Gell—instrumental in "human" "self-understanding," for us they are rather the very vehicle for shaping isomorphic networked milieus of humans/poems/machines. And in doing so, they shape the networked individuals across these interconnected milieus as well. It is in fact off of such isomorphisms that we base our notion of the potentially radical societal and community-oriented relevance of poetry in digital space and culture. Our umbrella term for such relevance is *data-commoning webformance*, which we will detail in a bit.

But before doing that, let us look more closely into the symmetrical bi-directional process we just alluded to, whereby environments and individuals are shaped and

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<sup>2</sup> We are using the phrase "digital space" in Stephen Kennedy's acceptance of the term, the (ubiquitous/all-engulfing) space of chaos media that ontologically goes beyond the real-virtual binary and that is informed by a non-representational paradigm and by the "sonic economy" best describing digital culture (Kennedy (2015)).

shape each other simultaneously. We concur in this perspective with authors in the field of constructivist theories of cognition in which the crucial hypothesis is that “living systems are not primarily defined through the discrete qualities of their components, but through relations” (Schwarz (2018) 66). Our model is consistent with such theories in that we see poems—in digital media—as never in isolation, but always inscribed in the medium as performative and contextual. Their constitutive features are always informed by the (computational processing of the) other poems in the relevant corpus/ora, just as they are performed by the other writing operations involved in the inscription—and, again, computational processing—of those corpora in digital space and media. In terms of digital writing—as computational inscription and processing—the poem performs its environment while being itself performed by the latter, or, in the language of the above-mentioned theories, “the object comes to appear as if it generates an Umwelt” (Schwarz (2018)).

We would like to extend the scope of this model towards correlationist philosophy and explore the latter’s previous translation to the subject of poetry—mainly in Brian Kim Stefans’s *Word Toys. Poetry and Technics* (Stefans (2017))—and thus consider it as a possible basis for discussing poetry’s potentially radical societal and community-oriented relevance. Stefans’s poetics and references, remarkably rich and far too complex to be fully addressed in a discussion like the present one, will nevertheless provide more opportunities to explore than just the correlationist one. Yet for the latter already, the way in which Stefans draws on philosophers such as Quentin Meillassoux and writers like Vilém Flusser in, for instance, highlighting the notion that “only the correlation of the mind and object is what matters—neither can be understood without the other” (Stefans (2017), p. 1-2) will prove truly pertinent to the point we want to make.

We are (re)reading that latter statement from the dual angle of the isomorphisms above and the computational correlations informing our graph theory-based model. Our contention is that “mind-object” correlations, that is, connections made possible by means of (mutual) reading/processing/performance, refer to any (two or more) nodes in our networks. Poems inscribed and computationally processed in digital media are therefore understandable—they indeed can only exist actually—only through the correlations between one another. Every single poem is the mind while all the others are that mind’s objects.

Further on, correlate sets of “mind categorizations” will ensure the propagation of the intra- or inter-corpus correlations into the social. Such processual and performative model involves manifold feedback circuits: the societal impact will reflect back on the graph poem’s dataset(s), (re)configurations, and dynamics, which in turn will (help to) revisit, reshuffle, and at times reformulate the mathematics and algorithmics behind it, which in turn will impact the technology, platform, and web-based venue choices and/or constraints, and so on and so forth.

We are far from pioneering in trying to conceptualize poems as actors in a wider onto(techno)logical universe (or, rather, multiverse) shaping their own milieus. Although the actual societal values of that is different in his vision than ours, Brian Kim Stefans says something consistent on at least a couple of levels: “I’d like to imagine poems as autonomous entities that, like machines and living organisms, enact their own interactions with their milieus, perhaps each with its own ‘will to power’ and desire to reproduce, obtain sustenance, and evolve” (Stefans (2017), p. 2). While we are not attracted to the concept of the poem’s autonomy and its being a “non-textual and even non-cultural object” (Stefans (2017), idem), we are indeed of the same mind in

terms of a deep similarity between poems, on the one hand, and machines and “living organisms,” on the other, especially in their interactive shaping of (and, naturally, being shaped by) their milieus.

Stefans draws in fact on major 20th century philosophers, perhaps most predominantly on Simondon and the latter’s philosophy of technics, to spectacularly apply such approaches in poetry. He notably borrows Simondon’s breakdown of technics into elements, individuals, and ensembles, where elements have no actual functional autonomy (e.g. wheels), individuals represent coherent and autonomous assemblages of elements (e.g. locomotives and cars), while ensembles link several objects (elements, individuals, etc.) into chains of production (cf. Stefans (2017), p. 61 et infra). Elements are characteristic of the whole pre-industrial era, the rise of industry coincides with the rise of individuals, and ensembles represent the technology of the “information age,” the laboratory and, we would say most significantly, the computer network (idem).

While he is obviously not the first to explore the technical and, moreover, technological nature of poetry—major modernists such as, most popularly William Carlos Williams, but also Ezra Pound, have started a tradition that culminated with the rise of digital poetry—Stefans, while an outstanding practitioner of the latter, is the first to pursue this notion into developing a large-scale extensively theoretical and intensively illustrative poetics that refers to poetry in general; inclusive, that is, of both traditional ‘page-based’ as well as (post)digital (sub)genres. As already alluded, a work of such complexity and scope cannot possibly be properly discussed within the space and time of this writing, and that is why we will limit ourselves to highlighting some of the main concepts and particularly the ones relevant to our own topic and approach.

“I would like to suggest that poems, particularly the lyric (or short poem), ‘succeed’ to the level that they approach something like the technicity of a technical individual” (Stefans (2017), p. 69) states Stefans opting for the individual on Simondon’s historical and typological scale. Poems are in his view therefore non-machinic coming-to-terms with the “presence of technical essences,” and, again in the French philosopher’s terms, the continuation of life “by means other than life” (Stefans (2017), idem). One may find striking this preference of the poet for the individual, but in fact, Stefans revisits the philosopher’s classification and sees in the poem an ensemble “elevated ... to a technical individual” that, just like a machine, has parts performing functions of interaction with... *a milieu*, in ways similar to Pound’s own “condensare” (cf. Stefans (2017), idem).

It is on this preference for the technical individual that incorporates features of the ensemble, particularly in interacting with the milieu, that Stefans bases his appropriation of Simondon’s distinctions as adaptable to poetry. His own resulting innovative vision establishes, like above, tie-ins with certain foundational tenets of modern poetry and poetics. And as we will see below, this particular way of adapting such philosophical concepts to the subject will also allow Stefans to further tap into Simondon’s notion of individuation and discover more valences relevant to, and useful for, poetry there as well. But we need first to outline his own vision on the milieu and its relevance to the social in as much as poetry is concerned.

Stefans argues therefore that, since, as Simondon elucidates, technical individuals have the highest degree of technicity, they actually present the evolution of machines towards what is “nearly organic” (63, author’s emphasis). Consequently, their constitutive elements, the “infra-individual technical objects,” (Stefans (2017), idem) have no associated milieu, as they simply work as parts of the individual “like the heart or liver in the body.” While the constitutive elements have no milieu, the individual, the

genuine invention, will characteristically require one, since its relationship to the latter are not mediated by any other technical entities. Translated for poetry, this means, very much in line with Stefans's poetics, that poems are self-contained technical objects with components ("elements") that interact only between themselves and that, as a whole, do not necessarily have a society around them. Neither the society of other poems (Stefans speaks little of corpora, and poems relate to each other mainly through an inherent generative diagram, when and if the latter is the same<sup>3</sup>), nor human society.

The latter aspect is in and of itself at the crux of Stefans's poetics. As he frontally announces from his introduction and already briefly mentioned here, to him poems are "non-textual and even non-cultural objects" (Stefans (2017), p. 2), a perspective that is totally consistent with his reading of Simondon's ideas on the development of technics as having its own unique track of evolution. "apart from (and certainly not dependent upon) social or economical developments, one that can literally outpace culture's ability to absorb these changes into art, philosophy, or behaviors..." (Stefans (2017), p. 60) Does this mean that he has no interest in the social dimension of poetry? That is not the case at all, yet his is—in this respect as well—a rather one-of-a-kind approach.

There are two features of the poem that have or can acquire a societal impact for Stefans. The first one refers to the fact that poems can work as *pharmakon* (Stiegler's concept based on Simondon's individuation) and are *evental* (Badiou's term for revolution as singularity creating new possibility from the void, and thus paving the way for the impossible). It is the former that is relevant to our discussion, so we will briefly outline the concept and then look critically into its possible interconnections with the computational poetry performance in our focus.

To Simondon (as revisited by Stefans) individuation is a person's growth into a singularity by tapping into their pre-individual grounds that can work as a, if not *the*, source of creativity (cf. Stefans (2017), idem). Interestingly enough, the social valence of that emerges as a form of therapy, social therapy consisting in the rapprochement between humans and technical objects, a notion that has been developed by Stiegler into his own well-known concept of *pharmakon*. It is the latter that Stefans appropriates and applies in his discussion of poetry, thus foregrounding the poem as the (rediscovered/recuperated) toy that can liberate us from the stunted, narrowly pre-defined, and alienating social relationships we are entrapped in. In doing so, *pharmakon* can help us reconnect with, or even regain, infinity as existential amplitude and unfettered sociality. While revisiting Anne Waldman's verse and using such reading keys, for instance, Stefans excavates from her verse poetic strategies to "establish the long-circuit of fidelity to the milieu" (p. 97) and thus illustrate Stiegler's *pharmakon* and the very definition of "infinite thought" at the same time. (98)

It is important to note that Stefans's mediation of Simondon's thought is itself an assertion of the poet's own poetics and consequential to the way in which he articulates the (non) sociality of poetry. His adaptation and development of the concept of *pharmakon* for poetry criticism is based on a definition of Simondon's individuation that comes with an impactful reduction. It is limited to "persons" (and their growth and becoming creative), which inevitably reduces (the) sociality (of poems) to human society, while in fact the philosopher conceived of individuation as applying "to

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<sup>3</sup> Although this may of course remind one of New Criticism, Stefans's is a rather radical political and literary vision (inspired for example by Alain Badiou in ideology and the pataphysicians in literature) and more redolent of the Californian anarchist tradition rather than other more (or over) orthodox lineages.

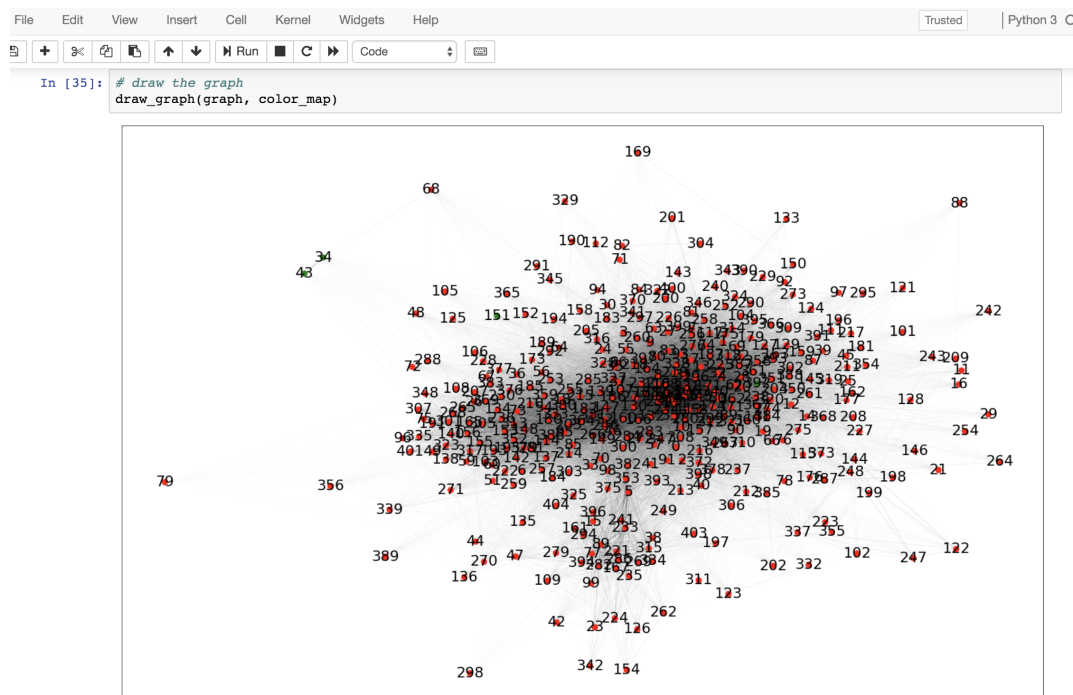


Figure 1: #GraphPoem @ DHSI 2019 JupyterHub Notebook.

molecules, human beings, technical objects, and collective societies alike” (Schwarz (2018), p. 63).

Poems therefore, as technical objects (or rather, as Stefans strongly argues, technical individuals) can also know individuation, and they do so in, and by means of, interacting with their milieus. And, as stated earlier on, a model informed by environment-sensitive (mental) categorizations can ensure isomorphisms (or at least consistent and chartable correlations) between various kinds of milieus, in this particular case, networks of poems and online communities involved in data-intensive networked computational poetry performance. The Margento #GraphPoem EPoetry event at DHSI 2019 was announced as a performance and consisted of a JupyterHub Python notebook available on the University Victoria server only for the duration of the event (Figure 1)—authored by Chris Tanasescu—for collective live data collection, code running, and output visualization, and a bot (@GraphPoem)—programmed by Prasadith Buddhitha—that tweeted content outputted by the script on JupyterHub combined with text visualization and YouTube videos (Figure 2). The latter featured cross-artform work by Margento, the performance poetry band whose name has been transferred over time to an international collective of writers, artists, coders, and translators doing collaborative writing/art/performance, as well as to the team working on the DH project #GraphPoem. The participants in DHSI and the concurrent ADHO SIG DH Pedagogy Conference could access the JupyterHub script and run it on a corpus of poems assembled by us yet also available for them too to enlarge (with basically any text they found relevant, interesting, appealing, and/or simply random).

Although the event had been announced as a performance, the participants and other people in the audience were for quite some time confused and waiting for the ‘gig’ to start. Still, as the bot was intermittently tweeting and using a couple of relevant hashtags, more and more people started getting push notifications and at times nudging each other, “look, it actually already started, it’s on Twitter, etc.” As



Figure 2: The @GraphPoem bot tweeting at DHSI 2019.

the tweets came with visualizations and/or videos, soon participants, guests, and spectators starting following or watching the same or, most often, different things as simultaneously as part of the same event. These various mediations and temporalities and the interactions they spawned amounted to an enactment of the model on various levels and to a (number of) multilayer performance(s).

The term for such interactive community-oriented digital space-based performance as advanced in a previous publication is “commoning” (see Tanasescu (MARGENTO) (2016)). The term draws, on the one hand, on contemporary (post-Occupy) radical (‘strike’) art and/as performance, and, on the other, on recent radical thought (Hardt and Negri, for instance, and their description of the occupying multitude as a performance, cf. Tanasescu (MARGENTO) (2016) p. 12). Moreover, it also gestures towards non-essentialist approaches to community (Agamben’s “coming community,” Tanasescu (MARGENTO) (2016). pp. 20-2), and thus refers to (re)shaping/sharing/founding/finding community in/as communal enactment and/or collaborative performance (of the ‘commons’). In articulating the latter aspect, we rely on recent advances in performance (and memory) studies and practice, particularly the work of Mechtild Widrich on “performative monuments” and reperformance (cf. Tanasescu and Tanasescu (2021)).

In our particular case—in as much as the event under discussion is concerned but also for #GraphPoem as the overarching project—the commoning is enacted in three major ways. First, by means of shared and collectively expanded data (in the form of txt file corpora as well as NLP and network generation and analysis algorithms in Python code), second, by live interactive coding script running at a ‘commons’ on JupyterHub, and third, the algorithmic ‘communal occupation’ of Twitter. We see all of these components and activities as fundamentally performative, particularly since digital space-based and all of them informed by digital writing (in its turn, essentially performative, see Tanasescu and Tanasescu (2021)).

Performance still, as already suggested, spills into quite a number of other aspects, media, and interrelations in potentially relevant societal ways. The manifold interactions of the performers/audience—between themselves and/or/by means of the various computational components, media, temporalities, and activities—represent to

us a good opportunity to explore ‘in action’ the earlier on discussed isomorphisms between various entities such as humans, poems, and machines engaged in (milieu-driven/shaping) individuation in digital space and media.

We are particularly preoccupied with the individuation—and the inextricably intercorrelated Umwelt(s)—of poems. From the experience of events such as the one mentioned and the ongoing work with, and on, poems and text in digital media, a reality—with its attending poetics—emerges sensibly different from the one depicted by Stefans. A poem does not exist in digital media otherwise but as contextual inscription (enacted/performed always in relation to other texts and/or digital writing operations) and variable instantiating readings (read as instantiations of various contextually/operationally relevant features). In our particular case, including a poem in the DHSI event corpus already deployed a number of other digital writing operations related to the generation/instantiation and the format and location of the directory. On JupyterHub, on the other hand, the script kept ‘reading’ the new files *as part of the expanding corpus*, therefore as related to other (existing or potential) items in that directory. Furthermore, as the participants run the script, the latter will process the texts and mine them for features establishing the correlations needed for representing the corpus as a network. In Lori Emerson’s terms (Emerson (2014)), the machine thus performs a reading-writing that maps every poem for the relevant features and also charts the whole corpus as informed by the interrelated quantifications of those features for all items (poems/texts) contained.

A poem accordingly evolves towards its own individuation by being integrated into the milieu which it shapes in its own turn by means of its own process, or performance, of reading-writing/writing-reading. As seen above, according to Simondon, this evolution can only take place by tapping into the ‘raw’ pre-individual ‘matter’ within and without the respective entity. In our case, as the poem is inscribed in digital media and digital space by and for computational processing algorithms, that said ‘matter’ consists of quite a number of layers, stages, parameters, and operations. Choices or default settings can be highly consequential for instance in terms of the kind of character encoding used (that makes ‘common’ alphabetical and possibly other types of characters readable to, and writable by, the machine) and other mechanisms of embedding a sequence of characters as text in digital media. Other settings or operations making for instance the file (and its path) accessible to the subsequent computational processing, or related to the algorithm(s) opening and reading the file (what is it they filter out or not in terms of characters, spaces, line-breaks, etc.) will impact significantly the processing and its output. At least equally consequential will be the choices related to the NLP sets and settings, the feature extraction and automated analysis (what kind of tokenization, what does the stop word set consist of, what kind of vectorization the script calls with what values for the parameters involved, etc). All of the above constitute poem’s pre-individuation ‘matter’ or materials in digital media and digital space.<sup>4</sup>

It is such media and computation-related materials and factors that are instrumental

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<sup>4</sup> In this particular case, the juxtaposition of the latter two environments—media and space (of the digital)—refers to a number of aspects among which the fact that since in digital culture, or the “culture of connectivity” (Van Dijck (2013)), nothing and nobody ever actually goes ‘off the grid’ (cf. for instance (Kirschenbaum, 2016)), files written and/or processed on personal/self-contained machines/directories are always infiltrated (when not totally generated and contained) by elements (apps, word processors, programs, coding libraries, etc.) based in digital space, and therefore actually totally immersed in the latter given its operability and ontology. Moreover, both the ‘commons’ (or ‘base of operations’)—JupyterHub—and the ‘performance venue’—Twitter—used for that particular event are literally Web-based.



in inscribing and performing the poem in digital space and in its contribution to the generation and (re)shaping of its milieu and/as itself. The resulting milieu of poems and texts represent just a few levels of that multilayer Umwelt in which all of those computational and medial elements are active (and re/de-)formed in their turn. An important aspect here, and as already mentioned above, sensibly different from Stefans's vision (via Simondon), is the role of computational features in processing the poems and/into their poetry corpus milieu. In equating the poem with a technological individual, Stefans also translates the particulars of the latter's interaction with the environment, as reflected on its constitutive elements, onto the poem as well. As already briefly explained, this positions the said elements very much like the "heart or liver in the body" (Stefans (2017), p. 63) and therefore, and perhaps most importantly, as having "no associated milieu" and "not interacting with an environment outside of the machine" (Stefans (2017), *idem*). The machine here is, of course, the technological individual or, in Stefans's extrapolation, the poem. Still, in computing data features for the poem's and the corpus' processing and analysis it is exactly the constitutive (technological) elements of the poem that enact its interaction with, and shaping of (while being shaped by), the milieu. If in one layer of the multiplex network, for instance, we represent correlations between the tf-idf vectors of each and every poem, that will reflect the frequency of certain terms in each of the poems as measured against their frequency across the corpus. Then, if in another one, we represent the correlations between the vectors representing rhyme and euphony scores for every poem, that will reflect the intimate sonic anatomy of all poems and the types and density of rhymes and other euphonious devices across the corpus. It is not only that the heart and the liver of the poem interact with the environment, it is actually through them alone (and its other 'internal organs') that the poem interacts with, inhabits, shapes, and is shaped by, the environment.

There is, on the other hand, significant hybridization between the poetic and the non-poetic in the traditional sense of the word—or perhaps, apoetic—in the above outlined processes. In generating the graph, a tf-idf layer may be significant but definitely applies to any other genres and types of text as well. Also, as new files are added by participants to the dataset, all sorts of text enrich the corpus, and the poetic-feature classifiers run on them will just provide irregular or erratic output. Other poetry-driven concerns will impact the NLP framework and results.

For instance, we significantly tempered with the Python NLTK (natural language toolkit)<sup>5</sup> stop word set as we wanted the first personal pronoun not to be flushed out in tokenizing the texts. The first person singular is traditionally—although at times rather stereotypically—seen as regularly frequent in lyric poetry. Yet while certain poets can indeed use it really frequently, others can consistently, sometimes even blatantly, avoid it. Among the former there will be an iconic lyric poet such as Sappho, to pick just a most famous example. But keeping the 'I' in will definitely help to identify the most representative of the latter category as well. Emily Dickinson or Georg Trakl, for instance, if in the corpus, will strikingly stand out. Dickinson's metaphysical compression and symbolic scope goes beyond the individual in gnostic and gnomic ways, while Trakl's expressionist visions are either too alienating or too encompassing and ecstatic to allow or care about any 'I' submerged in them. We also chose not to consider the first person plural a stop word. Its occurrence, particularly as weighed against the singular, can suggest a nuanced and more or less self-equated take on the community, as is the case with the poetries of Walt Whitman or Lyn Hejinian.

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<sup>5</sup> [www.nltk.org](http://www.nltk.org)

We did not want adverbs of place either to be counted for stop words especially since having a special interest in place poetry. But while the concern above can have a more general genre-related relevance and impact, this latter one was more of a task specific one. Besides being the world-renowned institution, DHSI also means to the members of the relevant communities, quite a number of personal and locative aspects that very interestingly complement its explicit and perhaps prevailing digital media and digital space focus. There are its charismatic and intellectually outstanding organizers and there is also the indelibly picturesque location, Victoria, B.C. Our option regarding such stop words was therefore meant not only to ensure the importance of place as event venue and genre-relevant stylistic feature at the same time, but to also capture intra- and inter-textual characteristics or ambiguities related to being digital space based and specifically geographically located at the same time. Most importantly, perhaps, to unveil textual corpus-imbedded features involved in distinguishing between the two and/or perceiving them as inextricably interrelated.

From a more general perspective, such fine-tuning of the stop word set (just as a host of other NLP-relevant choices and specific approaches) profoundly inform the inscription, processing, and analysis of poems within corpora. While this reflects a ‘philosophy’ of poetry reading, perhaps a poetics, on the part of the programmer, it does so in ways that most intimately fuse the computational and the poetic: the poems are the mode in which the machine reads and writes them, while the machine is *the* milieu of the poem. Such corollary stemming from NLP, and more generally, computational programming instrumentality will help us circle back to our main tenet regarding ‘the beyond’ of poetry as the poem’s Umwelt and the humans-poems-machines ontological and operational commonality it implicates.

There are in that respect two main aspects to note regarding the inscriptive performance of poems (and texts networked into ‘graph poems’) in digital space and media. First, it is, in Simondon’s (and post-Uexküll) philosophical, as well as Stefans’s literary theoretical, terms here revisited from our own angle, precisely the technical elements that prevent the poem from becoming or remaining a technical individual and that *are* yet instrumental in its individuation. The technical—medial and computational—‘apoetic’ features and procedures that shape it as a poem in its digital milieu. ‘Apoetic’ here has a twofold tenure, technological data-science features and approaches that push or ignore the established/‘traditional’ boundaries of the poetic genre, and also, technology that involves no *poiesis*, no putting forth of any coherent self-contained ‘individual’ or ‘oeuvre’. And, second in the above initiated enumeration, the technics making up that specific digital milieu of the poem undergo in their turn a process of individuation, as poetic commoning technology.

The sociality of poems and technologies is already there with its hybridizing and performative nature even before explicitly involving them in a ‘performance’ event. And they are there with their live (as in both living and at the actual time of occurrence/performance)—if not human—component already as well, as, according to Stefans via Simondon, “continuation of life ‘by means other than life’ ” (Stefans (2017), p. 69). Even before engaging in a poetry-technology-driven commoning event, the poem is already individuated/ing as machinic and human when impacting humans and the interconnectivity between humans, just as the latter have already been re/de-formed by, and into, technologies or poems. That is where we find the social impact of poetry and/as technology at one of its possible peaks, with individuation and milieu involving the processually overlapping humans (as technological and poetic beings), poems (as performative inscriptions in digital space), and machines (as

computationally implemented algorithms and artificial intelligence).

A previous initiative whereby we sought to demonstrate and enact the societal relevance and impact of computational poetry (and which the DHSI event actually built on) was the computationally assembled poetry anthology *"US" Poets Foreign Poets* (MARGENTO (2018)). While starting off by representing and analyzing an initial editorially selected corpus of contemporary U.S. poetry as a network graph the anthology advanced by algorithmically expanding it with poems that met certain diction-related criteria and, consequently, held certain peculiar positions in the gradually enlarged graph (cf. MARGENTO (2018)). Those newly added poems were included strictly based on the above mentioned features—having therefore a diction that conferred them certain topological prominence in the network—and irrespective of the author's region, thus opening the selection to anybody whose poem(s) fit the unusual profile, and translating the "U.S." in the title into "us," poets elsewhere and anywhere. This societal explicit implication and subversion of customary editorial politics of exclusion was noticed by critics and practitioners both on the social-literary level—Christopher Funkhouser, for instance, posed the rhetorical question "who among us ever dreamed that we'd see an anthology where Alan Sondheim's work resides near that of Charles Wright and Rita Dove, and in fact gets more page space than they do?" (Funkhouser (2019))—as well as the communal-ontological one (made evident by the "translation as process" and generative graph informing the collection), as John Cayley noted that the approach manages to transform "U.S. into 'US' because reading and translating in this way is what makes us us" (Cayley (2019)).

The DHSI 2019 event added to all of the above (and the book's challenging of medial essentialism inhabiting the current hardcoded gaps between print and digital) a 'commoning' approach involving live the community per se and resulting in a *webformance*. The corpus expanded by means of the corporeal and networked algorithmics straddled an online commons and a social media website it automatically inundated in ways that pushed the boundaries of corporate managed pre-established frameworks for 'user content'. In 'traditional' performance poetry the body is used as a medium of communication and/or status asserting prop, while physical artefacts are extensions of the body modulating the message and regulating (controlling even) the audience's reactions and/or participation in the performance (see for instance Novak (2011), pp. 151-169). The artefact in our case is the set of algorithms selecting the outstanding poems/texts contributed by the participants to the corpus (by means of network visualization and analysis), and sampling them (with further visualization and/or video-audio material) on Twitter. In doing so, the artefact contributes to generating a societal milieu, by bringing about "quasi-Umwelts," while to "a conscious observer" such "object comes to appear as if it generates an Umwelt" (Schwarz (2018), p. 66). Our conscious observers—or at least a part of them—were the very participants in the event and the milieu creation. The transition from the "quasi-Umwelt" above to what "appears" to be (i.e., is performed as) a full-fledged Umwelt marks in our view the participants' own transitioning from "observers" to being themselves performatively individuated. Their individuation was enacted by their involvement in the corpus expansion, the visualization and analysis of the resulting evolving network as collective assembly, and at times by being highlighted as remarkable co-assembler of the networked corpus whose contribution got sampled on Twitter.

We are not as naively utopian as to say that an experiment employing the artefacts above turn the traditional performance poetry paradigm on its head and thus, instead of controlling the audience, it liberates and includes them as full and unrestrained

co-authors of the performance. Yet a couple of potential upsides could definitely be advanced here. While, for instance, in certain approaches to traditional performance it was more often than not strictly the performer's body that the corporeal dimension of the event resided in, and the artefacts were their exclusive props and emblems of authority/authorship, in our particular case, there is implicit but effective collective corporeal engagement with the corpus and the algorithms that thus become everybody's performative artefacts.

That kind of engagement begs a quick note on embodiment. According to N. Katherine Hayles, embodiment is (unlike the body) an always enmeshed and *contextual enactment* (cf. Hayles (2008), p. 196), and in our case, these elements are obviously demonstrated in the literal networked contextuality of the corpus and the algorithm, as well as in the performative enactment of individuation and milieu as mutually generative. Moreover though, within such an event the enactment is framed as *webformance*, that is, a performance that, in (re/de)forming the Web, has actually everything to do with processual corpus commoning. And it is therefore the process, the commoning, that gets embodied, amounting to a corpus corporeal embodiment that ranges from literal body evocations (as in sampling a graphic epigram from the *Shanzhai Lyric* corpus) or displays (as in pulling Margento videos off of YouTube) to visualizing the network at a certain stage of collective engagement.

This latter aspect alludes to another possible advantage of such approaches. Namely, the attempted transition from the control-the-audience to the systemic-control-subverting-participatory-audience paradigm. The former refers to performances in which the 'onstage' performer(s) (tend or need to) control the audience in conventionally medium-oblivious approaches and settings; the latter to events highlighting the inherent performative and at the same controlling nature of the medium and involving (sections of) the audience in commoning practices potentially subverting systemic control.<sup>6</sup> The cultural and political context for the latter is the typically the one of cultures of connectivity and digital space, where the anonymous system is inescapable and control is ubiquitous since embedded in the very medium and the networks per se (cf. for instance Franklin (2012), Tanasescu and Tanasescu (2021)). Therefore, while we could not realistically speak of escaping control, we can talk about exposing it and even working with control against control, a point we have developed in another forthcoming publication (Tanasescu (2021)). The strategy in our case involved going back and forth between two online platforms and using algorithms to automatically inundate one of them with the collective data assembled and analyzed on the other. Yet we are not simply talking about sampling in social media certain data stored elsewhere (although storing and generating data at a different web-based location accessible only to the participants was of crucial importance to the subversiveness of the experiment), nor about just creating a bot that will tweet samples off a given text/corpus (although the deployment of algorithms that output content and then tweet that content is also essential for the message and the performance experience). We are talking about *data commoning*, algorithmic community building through shared (collection of, work on,

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<sup>6</sup> We are definitely not saying that the boundary between the two paradigms is the traditional-(post)digital one. It is actually imperiously necessary to note even if only in passing that 'page-based' poets have framed the potential social impact of poetry in terms strikingly similar to those in our discussion. Mainstream contemporary American poet and Kenyon Review editor David Baker recently stated, for instance, that "I do think poetry, the best of it, can help to shape a person's mind, his or her being-in-the-world, his receptiveness or her openness and rigor" (Baker and Quesada (2019)). Another awarded poet, Claudia Rankine talks about poetry's social function: "It's not arguing a point. It's creating an environment." (Baker and Quesada (2019))

and enlargement of) data, in/as *webformance*, performance that deploys networks (or user managed webs) to expose the Web's inherent control, which it de-forms and attempts to re-form by bypassing established fully regulated frameworks for online assembly and collective activities.

In conclusion, as poetry—and specifically the computational poetry work done within the *Graph Poem* project—has proved useful before in cross-disciplinary approaches that provided NLP and DH outcomes relevant beyond the genre-related tasks and even beyond the attendant literary concerns, the deployment and further development of those results in performance helped to cast light on a new dimension of such research, the social one. While the social relevance and potential impact of poetry is far from being the invention of our (post)digital society and our culture(s) of connectivity, new challenges, opportunities, and accordingly fine-tuned approaches emerged as possible in digital space and media. As outlined above, they mainly have to do with collective unconventional (alternative platform) data curation that will shape community in/as performance—*data-commoning*—and deploying network applications that disclose and subvert the ubiquitous control informing the Web by inscriptively and processually disrupting and deforming established frameworks for online social activity and assembly or, in one word, by means of *webformance*.

We drew in considering both the social-political and theoretical implications of such computational performance poetics on recent reframings of the concept of Umwelt as well as Simondon's philosophy of technics, particularly as revisited and adapted to poetry by Brian Kim Stefans. The concept of individuation—as inextricably intertwined with the one of milieu—turned out remarkably helpful in this endeavor. It is just that unlike Stefans for instance, our NLP and graph-theory-based approach to poems as inscriptive performances in digital space and media, while validating the fundamentally technological nature of poems, reached different conclusions regarding their interaction with, and generation of, their milieus. The technical elements making up a poem emerged therefore not only as not confined in the poem and away from the environment, but actually the very elements that enact its (non-individual) individuation and the shaping of its environment in both poetic and apoetic ways. The latter ensure in digital space and media the potentially pervasive social and community relevant impact of poetry in/as computational performance as it radically exposes and employs multilayered overlappings and interfusions between humans (as technological and poetic beings), poems (as performative inscriptions in digital space), and machines (as computationally implemented algorithms and artificial intelligence).

## Funding

This work was supported by the Social Sciences and Humanities Research Council of Canada grant number 430-2014-00349.

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