

Contemporary Archaeology as a Ludic Algorithm

A response to drifting through CHAT

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Abstract: This piece reflects the themes of the volume by retraining a neural network model of the English language. The original model is ‘perturbed’ by the way the essays in this volume write and think about archaeology. Through querying the model about this representation of archaeology, I am able to ‘drift’ through the ideas and direct the model to surface some ideas rather than other. In the end, this deformation enchants and reflects back a vision of CHAT that provides fodder for thinking about the intersection of future digital technologies and archaeology.



<insert figure 1 here>

Figure 1: The machine imagines ‘a book of conference papers from the festival of contemporary archaeology’. Generated using *Craiyon.com* and reproduced here courtesy of *Craiyon.com* in accordance with the Terms of Use: <https://www.craiyon.com/terms>.

‘Drifting’ - a psychogeographical method to explore & engage with place in new & unexpected ways (Overall, this volume; Debord, 2006 (1959)); ‘drift’ - the detritus along the beach, the resulting concretion of materials pounded by the shore; whose meaning matters depending on how it has come to accrete and with what (Pétursdóttir and Olsen 2017).

What would happen if I 'drifted' through this volume? If I became a drift? I grew up along a river. To drift, there, means to float along with the current - but it's not a placid river. To drift there means to run the risk of collision, capsizing, crashing, churning; to be grabbed by the river and held in a hydraulic where the water folds you tight against the rocks. To drift isn't as bucolic, as pastoral as you might think. It means to be carried away by currents and the river's own agenda: to be sublimated into the sea. If I drift through this volume what might I fetch up against? What might drag me under and hold me there?

When I received the volume, it had not yet been completely organized - and my computer did the organizing for me, into alphabetical order by author's surnames. Already, my drifting is being channeled by agencies not my own. So my course through the volume might not have been the same as your course, as you read this. There's something serendipitous about that. Quantum physicists tell us that things are only visible, only 'real' (for a given value of reality) when they are in interaction, that they exist *only* in interaction (Rovelli 2021). My collision with these texts, and their collisions with each other as I move through them, alphabetically, will be different than yours. How this volume becomes 'real' to me is not going to be the same as for you.

It would be traditional, at this point, to give you a synoptic overview of the authors' contributions, framing how they speak or illuminate the various emergent themes of the volume as I see them. But there's very little that's traditional about this volume (which is quite exciting!). I see some connective tissue in ideas of space and order and sequence, in collisions and unexpected backwaters and eddies. But throughout my reading, it wasn't the thing, the point-on-the-way that seemed to matter, so much as the journey between the points. As I caromed crazily through the materials, the juxtapositions created by my computer-imposed order seemed to suggest to me that crashing into each other made the most sense. COVID crashed into us. It upset carefully laid plans. It forced some kinds of interactions while forestalling others. There's a very clear 'before times' vibe to many of these pieces - whether that's from concerns about equity in Finnish archaeology, to the graffiti on a factory wall or in a bathroom stall, to the nostalgia and privilege inherent in the rebirth of analog photography. How can I make sense of this? I could try a little bit of crashing myself. The crash arrests my journey, my impact and my momentum collide; I stop; I bounce off madly somewhere else, changed.

To drift depends on the arrangement of spaces, and the flow of a medium through those spaces, whether water, attention, or something else.

Consider how language works. In English, at any rate, we anticipate what is to come as we listen to what has already been said. Meaning emerges through our attention to its structure. In archaeology, meaning emerges through our attention to the four dimensional context of things; in written language maybe that context is two dimensional, strung out on a line. Computational models of language have grown massively complex, and work by paying attention forwards and backwards to the probabilities of words-in-position; these models express this knowledge through measurements of positionality along monstrous dimensions of structure. What if I took one of these monstrous language models (monstrous in Morgan's 2019 sense of cyborg archaeology, perhaps?) and crashed this volume into it, perturbing it? The underlying model is drawn from unfiltered text from across the internet, millions of pages of it, for good and for ill. Somewhere in it there are ideas about archaeology. When I crash this volume into that model to perturb it, to retrain it with one more layer of knowledge drawn from CHAT, I'm shaking it such that archaeological knowledge sifts its way to the top; the model learns to talk about archaeology informed by these authors (plumped out with some background on archaeology drawn from Wikipedia because, well, such models require obscene amounts of data).

In a way, I've taken 'multi-author collaboration' to the extreme, creating a hideous new amalgamation. This new creature knows about archaeology, it would like to CHAT about archaeology, if we ask it. If I ask it a question, it cannot help but answer, picking words that it thinks most probable given my question as it fits into its model of the world, and those answers might reveal something new. It is a cyborg archaeology; my work is not part of this new cyborg consciousness, but my reactions to it, my interpretations to it, my use of it, ties me to it as much as if I was playing some kind of game; a game doesn't realize its full potential until it is played. A song is nothing until it is sung.

The novelist Robin Sloan (whose writing I would argue embraces and embodies digital humanities' ways of knowing) writes, of such generative models,

"I don't believe AI tools are useful for serious writers. I can't provide an explanation for this difference; not even much of a theory, honestly. I'm just reporting my findings... understand that it was the language models themselves that captivated me, rather than the words they produced. Their bullshit acknowledged, these models remain, for me, provocative "objects"; complex scintillating gems; computational Infinity Stones. The good stories aren't in them, but about them: their creation, possession, loss, recapture." (Sloan 2022)

For Sloan, 'bullshit' isn't about truth, but about persuasion. Bullshit talks for the sake of talking. But I don't think this language model is bullshit. I'm not using these models to write, but to play. In what they create, in what they do, there are good stories that can emerge. These models do not write like we do, they do not create like we do, but nevertheless they do, and in doing, *they reflect ourselves back to us*. In this, they are like Bethany Nowviskie's

'ludic algorithms' (2014). Nowviskie writes about Ramon Llull who invented a mechanical system called the 'Ars Magna', in the 13th century. The system was a recombinatorial device of inter-rotating wheels, meant to be a mechanical aid for generating, analyzing, and interpreting philosophical and theological problems of the day. It was a tool for thinking through, a tool for thinking with, rather than a tool for generating 'the answer' to those questions (140-142). Its wheels are the hardware, but in his specifications for how the different elements interrelate and combine - the 'software' - Llull demonstrates how to use the system to 'pose interesting queries and hypothetical situations' (149). Nowviskie calls it a 'ludic algorithm', and writes,

I am inclined to argue that the best new use for Llull's old machines might be as defamiliarizing devices, modeling... the application of mechanical or algorithmic systems to problems of interpretation.

I use a language model as a ludic algorithm with my new machine. I am crashing into this volume, creating an archaeological monster, in a way that goes back to Llull in the 13th century. Or indeed, as in popular fiction, like the witches' approach to divination in Terry Pratchett's Discworld stories - tea leaves are just something to rest our eyes on while our subconscious goes out to interrogate the world. Or, as Mark Sample (2012) discusses, I am *deforming* the work of the contributors to this volume, to make something new and beautiful. Something *enchanting*, in the way that Jane Bennet (2001), reformulated by archaeologist Sara Perry (2019) suggests.

Let us have a conversation with this monster, this fusion of perspectives on contemporary archaeology.

Computer, please summarize the theoretical aspects of this volume.

The focus of this volume is Human-Coexistence.

How would you characterize 'contemporary archaeology' given these papers?

I think of archaeology as a kind of divine intervention in things that they appear to us, and in the transformations that they create.

What is the relationship between archaeology and COVID?

We attempt to interpret archaeological data collected to create models that can be applied to policy and policymaking. The archaeology of contemporary communities is currently polarized, over which side is more likely to contribute, and which side is more vulnerable to being destroyed.

Can you elucidate your thoughts on the relationship between archaeology and COVID?

TL;DR: Like so many other species, the archaeological record is shaped and re-arranged by human activity. We make mistakes, lose the context of past experiences, and/or mark archaeological sites with dots or other marks. We lose sight of the fact that COVID was a multi-disciplinary problem with a single theme: exploitation.

Complete the phrase: An archaeology of COVID is

ethnographic in nature, taking a stand against power and privilege. It challenges social, material, and political conceptions of the past and the processes by which these dimensions of places and contexts intersect. It is also a rebelling against dominant cultural, political, and economic frameworks, seeking to build a just and democratic new order in the midst of a global pandemic. COVID was a result of a combination of anthropogenic, climate and social factors, which is a quite new theory in the sense that we have not yet had the opportunity to thoroughly explore its causes and mechanisms. The impact, then, was not intended as an ending, but as a starting point, to build a more diverse and engaged archaeology.

Is there any value to this experiment?

It is an experiment in ambiguity, and every piece of evidence is, by definition, an illusion. It is also a form of visual art without a purpose: the piece does not imply a new visual art; it simply adds another layer to the infinite stack of photographs stacked upon the previous one.

Please say more.

On some accounts it does not make a difference. On the other hand, some unruly groups may come to the surface, draw from the chaos, and create something truly disruptive.

Explain to me more what you meant when you called archaeology 'a divine intervention.'

Though I have yet to have a position or expertise on a project I have never handled as a scholar or a Shaman, I have a background in archaeological research and a theory which I hope will shed some light on the nature of the divine. I have also encountered questions which I have often encountered in my previous practice: - as a scholar, as a spectator, as a user of recorded archaeological data - as a person, who has it all figured out - what does it mean to, as a collective, share in the knowledge between cultures? - as a collective, do we all embody this shared heritage and work with it in our work? - do we all work in secrecy, with no one to see it?

What is the key message we should ruminate on, having read this volume?

—and having obeyed the directions?—We do not know yet.

*Pace the Google engineer who believes that such dialogues are evidence of consciousness (Tiku 2022): this cyborg model of this volume, the multi-dimensional monster I have created, is not sentient. Returning to the moral philosopher Pratchett (2003), the model is not unlike the god Nuggan, whose dead voice reflected back to his people all that they cared to say. It is a fun-house mirror, a trapped reflection of different perspectives on archaeology in dialogue with each other. But in that reflection, I think we see the themes of this volume in a powerful new way. I am particularly haunted by this one phrase: '**We lose sight of the fact that COVID was a multi-disciplinary problem with a single theme: exploitation.**'*

What are *your* bruises from drifting in the current of this volume? Contemporary archaeology is a ludic algorithm for making those bruises visible, for addressing that violence.

I am left hopeful, for the machine also wrote,

“It is also a rebelling against dominant cultural, political, and economic frameworks, seeking to build a just and democratic new order in the midst of a global pandemic. [...] The impact, then, was not intended as an ending, but as a starting point, to build a more diverse and engaged archaeology.”

Colophon

The model I used was the GPT-2 language model from Open AI (the 355M version). This model has been superseded by larger models with *billions* of parameters and dimensions. GPT-2 is the largest model that I can get to run, with difficulty, on my own computer. AI researchers continue to race along, building larger and larger models. As Robin Sloan has argued, there is value in learning the ins and outs of one model, one tool; value in developing facility and ability with one tool, learning how to perturb it, use it, examine it, understand it. I have been fascinated with the idea of language models and how they might reveal social-level understandings of archaeology for some time. You can give it a try yourself using this Google Colab notebook by Max Woolf:

<https://colab.research.google.com/drive/1VLG8e7YSEwypxU-noRNhsv5dW4NfTGce>

A shortened url that points to that same location: <https://bit.ly/2JfNY36>

The image that accompanies this piece as Figure 1 is from a similar model that uses its understanding of text to generate (and evaluate its process) images from text. If these language models, these image generation models, include within themselves some kind of representation of what archaeology 'is', then we'd best understand what those ideas *are*, since these are the models that are going to become the basis for algorithmic decision making before too much longer.

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Overall, <2022. this volume>, Archaeology, COVID, and festivalCHAT

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