Infinite Descriptor: The (Un)Predictability of Prediction

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Abstract

Machine learning as a form of prediction attempts to know the world or determine its future events through statistical modelling, where artificial neural networks form models by processing vast amounts of data. However, despite the aim of predictions to curtail futurity, even when it is working "as it should," we experience algorithmic activity in the world unfolding in "ways that stray from calculable paths" (Amoore 2019, 163).

This paper and the practice-based research it details, *Infinite Descriptor*, approaches the seemingly aberrant activity of predictive algorithms as immanently part of their actuality, as indicative of their mode of being and reasoning in the world (Parisi 2019). I propose that divesting from algorithms the idea that they can determinately calculate or be optimal enables us to grasp how they are transformational or generative rather than citational. In terms of artistic or design practice, this presents an opportunity to work critically and creatively with predictive algorithms.

Infinite Descriptor

Infinite Descriptor is an installation where three different major image recognition platforms take a "walk" together through the latent space of a "cloudy" predictive machine learning model. Echoing empirical descriptions penned by naturalist writers wandering through and seeking to "truthfully" capture the landscape and its atmosphere, the work interrogates a problematic representationalism that is fundamental to machine learning practice and culture. This representationalism pivots around a claim that through machine learning's capacity to emergently generalize relations within large-scale datasets, via training, a homologous description of reality or thought processes can be formed or generalized within its models.

The three image recognition platforms were fed image stills taken from a video of clouds forming. This video was generated by training a general adversarial network or GAN on a database of cloud images and then taking a latent walk through the model. When shown the same stills from the video, each image recognition platform produced different classifications, with variation present in the types of labels detected and their confidence scores. These differences were then used to computationally generate a spoken conversation between the three image recognition platforms about what they see. An example statement from the generated conversation: "Abstract, or artificial, and high illumination, I do not know. It is impossible to show the actual color of the clouds above me, but I will take the light and make it into a picture."

By placing the three image recognition platforms into differential relation, I amplify how each of them is a contingent and specific human-machine re-configuration of "seeing," rather than a generalized vison. This diffractive methodology (Barad 2007) demonstrates the ongoing differences generated by machine learning as a decision- and knowledge-making practice. The predictions by the different image recognition platforms create indeterminate futures, as rather than simply objectively describing or reflecting what they see, the differences they generate due to their specific configurations affect what can and cannot matter in the world.

Rationale

In broader machine learning practice, errant behaviors, such as bias, are treated as productive occurrences that can be assimilated back into the practice and its models (Amoore 2019). For Louise Amoore this means that simply pointing to erroneous activity cannot destabilize machine learning's epistemic authority because its practice and field are oriented around optimization and error-correction. Unexpected outcomes and contradictions between what predictive algorithms are instrumentally optimized towards (i.e. generalized image recognition) and their actuality are only put down to technical error (Weizenbaum 1976).

In contrast to broader machine learning's approach to error, I consider *Infinite Descriptor* what Amoore calls a "badly formed composite" (Amoore 2019, 165). Within my practice, this means conceiving of computational assemblages as contingently formed, incomplete and inconsistent. This does not mean that technically *Infinite Descriptor* does not work, but that in its making a sublime implementation was not achieved, nor was it the objective. Instead, after the work of Adrian Mackenzie (2017), I take up diagramming as a method to trace the actual material diversity of datasets, implementations, models, and techniques of which machine learning practice is composed. This method fosters opportunities to discover and articulate "points of slippage or instability" that may unsettle prediction's authority, and through which we can become attuned to its capacity to generate alternate forms of differencing (Mackenzie 2015, 441).

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Biography

Practice-based researcher **Monica Monin** explores design and creative practice within an overabundant and heterogenous media ecology. Specifically, her research addresses the effects, possibilities and role of computation, code and data within poetics (making). She further questions how we can critically work with coding practices in order to better apprehend the intensive media environments involved in the production of knowledge and meaning-making. She is a lecturer in Visual Communication at the University of Technology Sydney and is currently undertaking a PhD at the University of New South Wales. More info: http://www.monicamonin.com.