Information Particles: Tracing the Ambiguities of the Creative AI

Dr. Dejan Grba

Associate Professor, School of Cultural Technology, Xi'an Jiaotong-Liverpool University, Suzhou

dejan.grba@gmail.com

Abstract

As a summary of the forthcoming paper, this presentation rounds up major ambiguities which influence AI science, which are manifest in the production of AI artists, and shape the representation of creative AI in popular culture.

Introduction

Contemporary AI research centres around a machine learning (ML) paradigm called a neural network, which consists of parameter-processing units ("neurons"), input/output, and control modules. Such a system can be programmed to refine the procedure for solving a particular problem by dynamically modifying parameters based on the referential data. Deep Learning (DL) is a subset of ML methods in which the optimization of network performance and accuracy relies on statistical rules applied to multiple layers of neurons. The increasing accessibility of DL has encouraged artists to start exploring the creative capabilities of AI. Their work contributes in different ways to the creative AI, and shares both the advantages and shortcomings of the field. Addressing AI within the perspectives of new media art, mainstream contemporary art and cultural sector, the paper we outline in this summary expands upon the critical consideration provided by Mitchell, Marcus and Davis, Miller, Żylińska, and others. A complete list of references cited in the paper is available at https://github.com/dejangrba/brittle-opacity.

Ambiguities

Since its outset in the 1950s, AI science has been entangled with various epistemic uncertainties and conceptual issues. A persistent source of conceptual issues is the mutual non-exclusivity of symbolic (logic-based) and subsymbolic (statistics-based) models in ML. Looking for flexible hybrid solutions, recent AI research fluctuates the scope of these two models, but requires conceptual clarity to define the reliable methodologies for exploring such solutions. This is compounded by the incoherent consideration of human cognitive abilities. Human intelligence is not understood well enough to be captured with robust formal definitions and rules necessary for computer emulation. Intelligence is integral to human nature: a complex set of often conflicted cognitive faculties which have been evolving within the material, existential and social reality of our species. The concept of human nature is controversial in the humanities, social sciences and other disciplines that study intelligence, and it remains underappreciated in mainstream AI which concentrates on specialized narrow-focus platforms. However, without flexible control algorithms analogous to human common sense, narrow AI systems struggle with accuracy and safety in handling statistically extreme (rare) but plausible scenarios (Mitchell 2019).

AI's most pronounced conceptual ambiguity is anthropomorphism: a tendency to fictionalize the existing narrow AI as the artificial general intelligence charged with polar attributes (subjugation vs benevolence) rather than making better efforts to detect and correct in it a full spectrum of elusive human weaknesses, contradictions and biases. Subsymbolic ML systems rely on large training datasets of hand-annotated media, but often lack objective assessment mechanisms, which prompts the translation of socio-political biases, prejudices, and misconceptions from the human behaviour used for model development into the machine-learned models. Disparate notions of ethical principles such as fairness, transparency or responsibility, make it difficult to establish

widely acceptable criteria and to implement them as AI algorithms for evaluation, selection and decision making. Ethical principles are fuzzy categories that comply to human interests in the form of Gaussian distribution whose long tails are problematic, and throughout history they have been manipulated by the assumptions that human values are compatible and homogenous. For example, fairness is defined by a set of rational or perceived interests, but these interests vary between individuals and groups, in different contexts and conditions. They can be pragmatically or unintentionally short-sighted, contradictory, (self-)deceptive or inconsiderate in shaping our goals and actions (Trivers 2011). Emotional immunity to most ethically disturbing cognitive dissonances is an inherent feature of human mind.

All branches of creative AI face a temptation to exploit the ideological authority of the digital paradigm and heightened socioeconomic attention to the field. It leads to overpromising in AI science and hyperbolic media reports, to manipulative strategies in AI art, to dubious speculations and extreme futuristic scenarios about AI. These trends divert general attention from many important but misrepresented issues of AI (Marcus and Davis 2019). For example, mainstream AI suffers inadequate sensibility for investigating the authentic creative potentials of AI systems. Its emphasis on imitating human cognition instead of discovering new technical models of intelligence is chiefly caused by the commercial interests which tend to collapse promising research ideas into conventional business practices. Despite all these drawbacks, AI development stimulates human creativity by challenging knowledge, skills, innovation, inventiveness, and artistic expression.

The conceptual repertoire of contemporary AI art is primarily informed by the phenomenology of subsymbolic ML systems. Its thematic, methodological and aesthetic range is relatively modest compared to other areas of new media art. Frequent use of few available platforms and training datasets quickly results in aesthetic homogeneity, so the artists race to access the emerging code architectures or to curate original training models (Miller 2019). Such efforts are commendable, but may also

indicate the lack of appreciation that poetic cogency is not reducible to prima facie relationship with technology. In a broader creative sense, however, AI art faces the intricacy, sophistication, and consequentiality of the work in AI science. Examples include the highly intuitive experiential skills involved in tuning the hyperparameters of Convolutional Neural Networks, or Max Hawkins' experiment *Randomized Living* (2015-2017) which qualifies as a strong artwork of cybernetic-existentialism. The artistic flavours of AI research could be arguably more interesting than current practice of AI artists, but they also motivate the synergy of creative methodologies and insights between the disciplines, which may be crucial for their advancement.

Conclusion

The ambiguities of the creative AI have a wide-ranging impact on science, technology, economy, politics and social relations. On the other hand, through dynamism and versatility the field has been able to tackle many cognitive challenges, conceptual issues and technical obstacles, and to make continuous if not fully coherent improvements. Artists' opportunity to establish meaningful poetic frameworks within such context depends on their ability to cultivate well informed critical attitudes toward their motivations, goals, and practices. In a broader prospect, the constructive approach to AI requires a profound understanding of the intrinsic contradictions and inconsistencies of human mind, including those "protected" by our ignorance, hypocrisy, vanity and delusions of self-importance.

References

Marcus, Gary F., and Ernest Davis. 2019. *Rebooting AI*. New York: Pantheon Books.

Miller, Arthur I. 2019. *The Artist in the Machine*. Cambridge: The MIT Press.

Mitchell, Melanie. 2019. *Artificial Intelligence*. New York: Farrar, Straus and Giroux.

Trivers, Robert L. 2011. *Deceit and Self-Deception*. New York: Penguin.

Biography

Dejan Grba is an artist, researcher and educator. He explores the cognitive, technical, poetic, and relational features of generative systems. He has exhibited, taught, and published widely.