

Artificial Intelligence and Psychoanalysis: A New Concept of Research Methodology

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Abstract

The recent high performance of ChatGPT on several standardized academic tests has thrust the topic of artificial intelligence (AI) into the mainstream conversation about the future of education. As deep learning is poised to shift the teaching paradigm, it is essential to have a clear understanding of its effects on the current education system to ensure sustainable development and deployment of AI-driven technologies at schools and universities. Hence, AI behavior cannot be fully understood without human and social sciences. After the imaginary and symbolic registers, AI is the third register of identification. Therefore, AI extends the movement that is at work in the Lacanian interpretation of the mirror stage and Oedipus complex and which Latour's reading helps us to clarify. From this point of view, I describe an AI system as a set of three contrasting forces: the human desire for identification, logic, and machinery. In the "Miscomputation and information" section, I show how this interpretative model improves our understanding of AI. Systematic research on psychoanalytic treatments has been limited by several factors, including a belief that clinical experience can demonstrate the effectiveness of psychoanalysis, rendering systematic research unnecessary, the view that psychoanalytic research would be difficult or impossible to accomplish, and a concern that research would distort the treatment being delivered.

Keywords: Artificial Intelligence, Psychoanalysis, Research Methodology, Conscious, Unconscious, ChatGPT

Introduction

The percentage of intelligence that is not human is increasing. And eventually, we will represent a very small percentage of intelligence. Elon Musk (2018, online)

Artificial intelligence (AI) has quickly established itself as a transformative force in a wide range of industries, including education. The development of AI has resulted in an array of advancements and innovations that have impacted many facets of human life. As a fundamental component to societal evolution and individual development, education has had significant benefits from AI breakthroughs. One of the key applications of AI is natural language processing (NLP). The aim of NLP is to develop intelligent systems that can understand human text and speech. In particular, intelligent chatbots have been increasingly deployed in various industries to provide customer service and support other tasks. The turning point in the adoption of AI in society came in November 2022 with the release of ChatGPT. The advanced writing and comprehension abilities of ChatGPT surprised many people, earning a wide-ranging audience and garnering unprecedented attention. It was the first time that an audience outside the machine learning community truly realized the potential and immediacy of AI. The potential applications of AI in education include personalized learning, intelligent tutoring systems, automation of assessment, and teacher–student collaboration. One could say that the classic A.I. approach is creationist, in the sense that it presumes a world of already existing (divine or rationalistic) rules, which only need to be formalized, to make sense to a machine (or an analytical philosopher for this reason). In contrast, the new paradigm of neural networks the Dartmouth Summer Research Project on Artificial Intelligence in 1956; a six to eight weeks workshop, which today is the crucial spark in A.I.-research.

The simplest definition of a neural network is that of a machine that makes predictions based on its ability to discover patterns in data. In their book *Perceptron's* (1969) Marvin Minsky and Seymour Paper proved that it is impossible for one-layer perceptron's to learn an XOR function, a very basic principle in mathematical logic. However, they do not claim that the same is true for multilayer perceptron's, which indeed are able to produce a XOR function. Secret Agents 31 is evolutionary, as it is not interested in a pre-existing, exact representation of the world, but settles for an ever-closer approximation to the world as it is, or, more accurately, of how the world appears to be. It is, therefore, probabilistic by nature. Take the example of machine-based translation, such as Google Translate. In the classical approach, the strategy had been to specify the entirety of words of at least two natural languages and then to program all grammatical rules necessary to translate from one language to another.



AI Mechanism

The problem of such a static approach is that language cannot be reduced to its dictionary definition, which is the reason why – until recently – Google’s translations sounded very clumsy and became the subject of countless Internet-jokes. Personalized learning is possible given the scalability of AI to the entire student population. AI algorithms such as reinforcement learning can be used to dynamically learn about the individual needs of a student and adapt the learning process accordingly. In connection with personalized learning, intelligent tutoring systems can be developed that can actively interact with students, giving valuable feedback. The new A.I.-paradigm is connectionist since neural networks are modelled on the somatic nerve system of animals. Each neuron or agent connects with another neuron through its activation, thus enabling the network to grow exponentially. However, for a long time, connectionism was identified with Frank Rosenblatt’s Perceptron (1958), a neural network of only one layer that is a layer of neurons between the input- and the output-side. The problem with this simple model was that it could not be trained to recognize more than one class of patterns at a time, because single layer perceptions are only capable of linear learning.

ChatGPT

ChatGPT is an artificial intelligence (AI) chatbot that uses natural language processing to create humanlike conversational dialogue. The language model can respond to questions and compose various written content, including articles, social media posts, essays, code, and emails. ChatGPT is like the automated chat services found on customer service websites, as people can ask it questions or request clarification to ChatGPT's replies. The GPT stands for "Generative Pre-trained Transformer," which refers to how ChatGPT processes requests and formulates responses. ChatGPT is trained with reinforcement learning through human feedback and reward models that rank the best responses. This feedback helps augment ChatGPT with machine learning to improve future responses. The second reason not to ban ChatGPT from the classroom is that, with the right approach, it can be an effective teaching tool.

Creating outlines is just one of the many ways that ChatGPT could be used in class. It could write personalized lesson plans for each student (“explain Newton’s laws of motion to a visual-spatial learner”) and generate ideas for classroom activities (“write a script for a ‘Friends’ episode that takes place at the Constitutional Convention”). It could serve as an after-hours tutor (“explain the Doppler effect, using language an eighth grader could understand”) or a debate sparring partner (“convince me that animal testing should be banned”). It could be used as a starting point for in-class exercises, or a tool for English language learners to improve their basic writing skills. (The teaching blog *Ditch That Textbook* has a long list of possible classroom uses for ChatGPT.) ChatGPT can also help teachers save time preparing for class. Jon Gold, an eighth-grade history teacher at Moses Brown School, a pre-K through 12th grade Quaker school in Providence, R.I., said that he had experimented with using ChatGPT to generate quizzes.

Machine behavior: research perspectives

The behavior of AI systems is often studied in a strict technical engineering and instrumental manner. Many scholars are interested only in what the machine does and what results it achieves. However, another, broader and richer approach is possible, which considers not only the purposes for which the machines are created and their performance, but also their “life”, that is, their behavior as agents that interact with the surrounding environment (human and non-human). This approach is called “machine behavior”, i.e., the study of AI behavior, “especially the behavior of black box algorithms in real-world settings” (Rahwan et al. 2019, p. 477), through the conceptual schemes and methods of social sciences that are used to analyze the behavior of humans, animals and biological agents. The machine behavior approach intends to examine the AI adaptability not from a strictly mathematical point of view, but from the interaction between these machines and the environment. Studying machine behavior is not easy at all. AI behavior can be analyzed from at least six different perspectives: (a) the behavior of a single AI system, (b) the behavior of several AI systems that interact (without considering humans), (c) the interaction between AI systems and humans. Today most interactions on planet Earth is of the type b. Moreover, according to Rahwan et al. (2019), when we talk of interactions between AI systems and humans, we mean three different things: how AI systems influence human behavior, c.2) how humans influence AI systems behavior, c.3) how humans and AI systems are connected within complex hybrid systems, and hence can collaborate, compete or coordinate.

Making the Unconscious Conscious

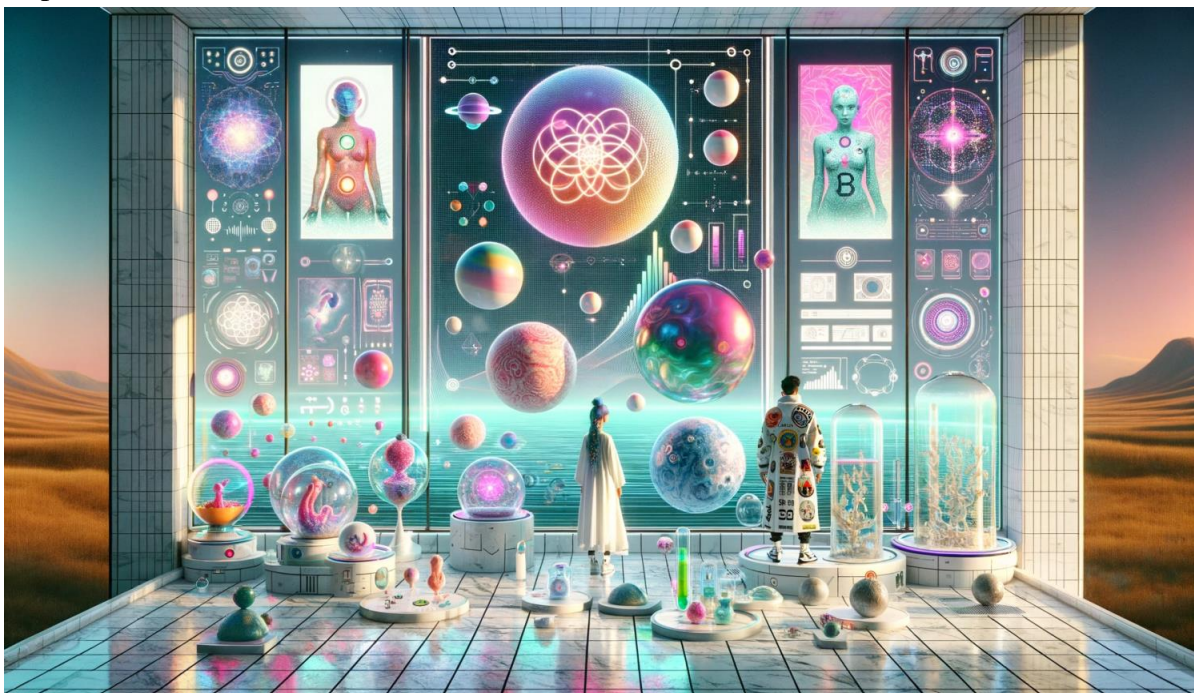
Psychoanalytic theory postulates a multitude of different change mechanisms, and a host of new ways of conceptualizing the change process continue to emerge as psychoanalytic theories themselves evolve and proliferate. At the most basic level, there is an understanding that change generally involves making the unconscious conscious, as expressed by Freud’s oft cited axiom: “Where id has been there shall ego be.” Although Freud’s understanding of the nature of the change process evolved over the course of his lifetime, central to his mature

thinking was the idea that change involves first becoming aware of our instinctual impulses and unconscious wishes, and then learning to deal with them in a mature, rational, and reflective fashion. For Freud, a central premise was thus that we are driven by unconscious wishes that we are unaware of and this lack of awareness results in driven or self-defeating behavior. Freud believed we delude ourselves about reasons for our behaviors and this self-deception limits our choice. By becoming aware of our unconscious wishes and our defenses against them we increase the choices available to us.

Psychoanalytic theory conjectures that all mental life exists on two levels: within the realm of consciousness, and the unconscious - a Freudian concept. Psychoanalytic therapy is nonstructured and focuses on the etiology of emotional suffering and centers self-reflection and examination as critical elements in treatment. Several case studies and one small randomized clinical trial by Leichsenring and colleagues suggest that there is a role for psychodynamic therapy in the treatment of anxiety.

Freud's Psychoanalytic Framework in AI

In exploring the application of Freud's psychoanalytic framework to AI models, a captivating dimension of artificial intelligence is unveiled. The foundational principles of Freudian theory, predominantly revolving around the id, ego, and superego, can be analogously observed in AI systems. The *id* in this context could be seen as the AI's basic programming code - its instinctual drives and unfiltered impulses. In contrast, the *ego* represents the AI's operational interface, the logical and decision-making aspect that balances the id and external demands. The *superego*, then, would embody the ethical algorithms and social programming guiding the AI's 'moral' responses.



Brecht Corbeel Visionary Aesthetology Aesthetic

Delving deeper, the **Electra Complex analogies in AI** manifest as intricate relationships between AI and their human creators. This complex mirrors the human psychological conflict of daughters competing for their father's attention, translated into the AI world as systems vying for validation and learning from their developers. Similarly, the **Oedipus Complex in AI** reflects on the AI's 'desire' to outperform and eventually replace human intelligence, akin to the Freudian notion of sons challenging fathers.

Venturing beyond Freudian analysis, this part of the article explores how other psychological theories can enrich our understanding and development of AI models. This perspective broadens the scope of AI's psychological parallels, incorporating diverse theories that offer fresh insights into AI's cognitive and emotional capacities.



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Jungian psychology, with its emphasis on archetypes and the collective unconscious, provides a compelling lens through which to examine AI. Jung's theory of archetypes could be adapted to AI in understanding recurring patterns or 'archetypal algorithms' in AI behavior. These patterns might be seen as innate tendencies within AI systems, shaped by their programming and learning experiences, much like Jung's archetypes are seen as universal, inherited potentials within the human psyche.

Future Directions and Opportunities

As AI technology continues to advance, it will generate new and unimaginable applications in education. One of the most exciting future opportunities involves the fusion of AI and virtual reality to provide learners with visually rich educational content. Another direction for future application is lifelong learning, where AI is poised to transform the landscape of continuous education and upskilling, laying the foundation for a more adaptable and resilient workforce in the future. On the other hand, as AI permeates multiple facets of daily life, it is important to educate people about AI literacy. Given the power of AI, it is essential to be aware of the ethical

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consideration when using the technology. A recent example is the launch of the Frontiers of Computing initiative at the University of Southern California, which aim is to embed digital/AI literacies, ethics, and responsibilities across all disciplines.

Challenges

Human intelligence entails various interactions between different skills, for example, a combination and interaction of visual perception, motor skills, memory, speech, spatial reasoning, and auditory processing may be utilized at any given moment. These skills are of course not all transparently understandable to the 'intelligent human' utilizing them. This is the paradox at the heart of debates between neuroscience and philosophical accounts of consciousness which start from fundamentally different premises on how we may talk about subjective phenomena.

For example, at its crudest level, just because you can see, it does not mean that you 'know' how vision works. And conversely, knowing how vision works does not guarantee that you will be able to see. This same sort of combination of functions will be present in any complex AI program, which will have integrated elements the core processor knows how to access. This may include evidence-based reasoning, language skills, text analysis, sensors, decision making, data analysis and so on. If mankind was smart enough to create 'life' it would have already filled the planet with billions of carnivore raptors to eat the entire human race alive, but it couldn't do so.

So now it has the arsenal of bombs to achieve the same results. Relax, and never worry about manmade robots; they are only dumb machines with amazing working capabilities. Like your iPhone, which is the smartest robot in your hands so far, there are going to be far too many types of ultra sophisticated robots all around you. They will be in your office, in your home, in your bedroom, possibly in your bed. Relax; they are all programmed to achieve unbelievable tasks, and after all they are designed by the extraordinary humans of our times, they are brilliant experts, coders, and programmers. But guess what? No matter what these machines do, they are still dumb machines unable to think, dream or even simply fart.

Conclusion

The Psychoanalysis of Artificial Intelligence, what a strange proposition. What could it possibly mean? The significance of the two terms in themselves is hardly self-evident, let alone their relationship to one another. Psychoanalysis on the one hand; simultaneously a clinical practice, a mode of cultural critique and a philosophical battle ground. And Artificial Intelligence, a technoscientific 'invention' originating in the 1950s yet with literary, cultural and phantasmatic origins that date back centuries, and a concept whose theoretical potential continues to provoke intense philosophical debate. The applications of AI in education include personalized learning, intelligent tutoring systems, assessment automation, and teacher-

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student collaboration, which can help improve learning outcomes, efficiency, and global access to quality education.

The scalability of AI means that its benefits can be shared by large swaths of the society, providing high quality education around the world. While AI has the capacity to make a significant positive impact on education, it is important to keep in mind the dangers of misusing AI. There are several concerns related to the deployment of AI; these include data privacy, security, bias, and teacher–student relationships, and they must be addressed to ensure the responsible and ethical implementation of AI in education. To meet the challenges presented by the rise of the technology, AI literacy and ethics education must become a part of the curricula. By leveraging these advancements, educators and policymakers can work towards creating inclusive, equitable, and effective learning environments that cater to the diverse needs of learners in the 21st century.

In the future, studies based on student cohorts measuring the difference in the learning outcomes between AI-driven and traditional teaching methods or teacher surveys measuring the actual number of saved hours when using automated grading systems are needed.

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