

REAL TIME COMMUNICATION SYSTEM POWERED BY AI FOR SPECIALLY ABLED

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Abstract:

Artificial Intelligence (A.I.) is a multidisciplinary field whose goal is to automate activities that presently require human intelligence. Recent successes in A.I. include computerized medical diagnosticians and systems that automatically customize hardware to particular user requirements. The major problem areas addressed in A.I. can be summarized as Perception, Manipulation, Reasoning, Communication, and Learning. Perception is concerned with building models of the physical world from sensory input (visual, audio, etc.). Manipulation is concerned with articulating appendages (e.g., mechanical arms, locomotion devices) in order to effect a desired state in the physical world. Reasoning is concerned with higher level cognitive functions such as planning, drawing inferential conclusions from a world model, diagnosing, designing, etc. Communication treats the problem understanding and conveying information through the use of language

INTRODUCTION

Artificial intelligence (AI) is the ability of machines to replicate or enhance human intellect, such as reasoning and learning from experience. Artificial intelligence has been used in computer programs for years, but it is now applied to many other products and services. For example, some digital cameras can determine what objects are present in an image using artificial intelligence software. In addition, experts predict many more innovative uses for artificial intelligence in the future, including smart electric grids.

AI uses techniques from probability theory, economics, and algorithm design to solve practical problems. In addition, the AI field draws upon computer science, mathematics, psychology, and linguistics. Computer science provides tools for designing and building algorithms, while mathematics offers tools for modeling and solving the resulting optimization problems.

Although the concept of AI has been around since the 19th century, when Alan Turing first proposed an “imitation game” to assess machine intelligence, it only became feasible to achieve in recent decades due to the increased availability of computing power and data to train AI systems.

To understand the idea behind AI, you should think about what distinguishes human intelligence from that of other creatures – our ability to learn from experiences and apply these lessons to new situations. We can do this because of our advanced brainpower; we have more neurons than any animal species.

Today’s computers don’t match the human biological neural network – not even close. But they have one significant advantage over us: their ability to analyze vast amounts of data and experiences much faster than humans could ever hope.

AI lets you focus on the most critical tasks and make better decisions based on acquired data related to a use case. It can be used for complex tasks, such as predicting maintenance requirements, detecting credit card fraud, and finding the best route for a delivery truck. In other words, AI can automate many business processes leaving you to concentrate on your core business.

Research in the field is concerned with producing machines to automate tasks requiring intelligent behavior. Examples include control, planning and scheduling, the ability to answer diagnostic and consumer questions, handwriting, natural language processing and perception, speech recognition, and the ability to move and manipulate objects.

Objective:

AI can be achieved by reading the behavior of humans and using the results to develop intelligent systems. For example, they learn, make decisions and act in certain situations. Observing humans while problem-solving in simple tasks and using its results to develop intelligent systems.

The overall research goal of artificial intelligence is to create technology that allows computers and machines to work intelligently. The general problem of simulating (or creating) intelligence is broken down into sub-problems.

The symptoms described below receive the most attention. These include special traits or abilities that researchers expect an intelligent system to exhibit. Eric Sandwell emphasizes planning and learning that is relevant and applicable to the given situation.

LITERATURE SURVEY

We did a survey over the possible sources we could access in our exploration we did find authors

Authors: Review Introduction The potential of artificial intelligence (AI) to augment and partially automate research has sparked vivid debates in many scientific disciplines, including the health sciences (Adams et al., 2013; Tsafnat et al., 2014), biology (King et al., 2009), and management (Johnson et al., 2019). In particular, the concept of automated science is raising intriguing questions related to the future of research in disciplines that require “high-level abstract thinking, intricate knowledge of methodologies and epistemology, and persuasive writing capabilities” (Johnson et al., 2019: 292). These debates resonate with scholars in Information Systems (IS), who ponder which role AI and automation can play in theory development (Tremblay et al., 2018) and in combining data-driven and theory-driven research (Maass et al., 2018). With this commentary, we join the discussion which has been resumed recently by Johnson et al. (2019) in the business disciplines. The authors observe that across this multi-disciplinary discourse, two dominant narratives have emerged. The first narrative adopts a provocative and visionary perspective to present its audience with a choice between accepting or rejecting future research practices in which AI plays a dominant role. The second narrative acknowledges that a gradual adoption of AI-based research tools has already begun and aims at engaging its readers in a constructive debate on how to leverage AI-based tools for the benefit of the research field and its stakeholders. In this paper, our position resonates more with the latter perspective, which is focused on the mid-term instead of the long-term, and well-positioned to advance the discourse with less speculative and more actionable discussions of the specific research processes that are more amenable applications of AI and those processes that rely more on the human ingenuity of researchers. In this essay, we focus on the use of AI-based tools in the conduct of literature reviews. Advancing knowledge in this area is particularly promising since (1) standalone review projects require substantial efforts over months and years (Larsen et al., 2019), (2) the volume of reviews published in IS journals has been rising steadily (Schryen et al., 2020), and (3) literature reviews involve tasks that fall on a spectrum between the mechanical and the creative. At the same time, the process of reviewing literature is mostly conducted manually with sample sizes threatening to exceed the cognitive limits of human processing capacities, as illustrated recently by Larsen et al. (2019), who estimated that in the IS field, the number of relevant papers in many research areas easily exceeds 10,000. As a consequence, some review articles, problematically, no longer aim for comprehensive coverage, often restricting their scope to few top journals. Overall, we anticipate that these trends will be reinforced in the future, further emphasizing the need to envision fruitful collaboration between human researchers and machines, such as AI-based tools (cf. Seeber et al., 2020). In light of these challenges, we focus on the contributions of AI which refers to the capability of performing cognitive tasks and exhibiting intelligent behavior commonly associated with human intelligence (Russell and Norvig, 2016; Taulli and Oni, 2019). Specifically, we are interested in approaches that are commonly referred to as “weak AI” and combine process automation (execution engines) with capabilities like machine learning (ML) or natural language processing (NLP). Machine learning refers to tools, methods, and techniques for learning and improving task performance with experience (Goodfellow et al., 2016; Mitchell, 1997), while NLP refers to computational tools, methods, and techniques for analyzing, interpreting, and increasingly generating natural language (Manning and Schütze, 1999). Although we are particularly interested in tools powered by advanced AI, we do

not discard pre-decessors of AI per se. AI offers two capabilities that are particularly salient for conducting literature reviews. First, they operate on potentially fuzzy, weakly structured, and unstructured data that are provided in the form of bibliographical meta-data or full-text documents. Techniques of NLP can go beyond purely syntactic processing of text by abstracting and analyzing its semantic meaning, thereby promising to offer valuable support in the searching and screening tasks. For example, papers including the word “review” may be hard to distinguish on a syntactic level, but using semantic techniques, NLP performs much better in dissociating whether “review” refers to a literature review or a customer review. An example applying such techniques to IS research is offered by Sidorova et al. (2008), who illustrate the topics prevalent in top-tier IS journals based on latent Dirichlet allocation (LDA) models. This paper clearly shows the advantages of LDA models, which allow unobserved (latent) topics to emerge from the analysis of bags of words. The application of NLP techniques has further been considered useful for generating semantic topics from samples of papers and thereby allowing researchers to explore the literature from a more abstract perspective (Mortenson and Vidgen, 2016). Second, advanced supervised ML techniques, such as deep learning, can be trained to replicate the decisions of researchers. This relieves researchers of the task of explicating and codifying myriads of rules, and even more significantly, it can automate decisions for which exact rules are hard to specify. The work of Larsen et al. (2019) is exemplary in this regard, developing classifiers that can automatically screen and include papers relevant to research on TAM (Technology Acceptance Model). Considering these capabilities, we expect AI to be most useful in the mechanical tasks of reviews compared to more creative ones. At the same time, an informed discourse and methodological guidelines are necessary to identify the appropriate areas of application and to address the challenges associated with AI, such as model overfitting, biases, black box predictions, and the acceptance by the research community. The objective of this essay is to frame the broader discourse on how AI is and can be applied in the individual steps of the literature review process, providing illustrative exemplars for prospective authors and outlining opportunities for further advancing such methods. To clearly frame this objective, we coin the term AI-based literature reviews (AILRs), which refers to literature reviews undertaken with the aid of AI-based tools for one or multiple steps of the review process, that is, problem formulation, literature research, screening for inclusion, quality assessment, data extraction, or data analysis and interpretation. Without necessarily being driven by academic researchers, functionality for literature searches is already supported by AI, as implemented by academic literature databases and indexing routines. We focus on how AI-based tools can evolve to play an even more powerful role and further automate and augment steps in different types of literature reviews. An important question for researchers is how such tools can best be leveraged in all stages of the review process and how it can be adapted to particular types of reviews. In doing so, it can be expected that different types of reviews, such as descriptive or interpretive reviews, will be more or less amenable to the use of AI. The remainder of this paper is structured as follows. In the next section, we outline the process of conducting a literature review