CZU: 811.111`373.43:004.8 **DOI: https://doi.org/10.5281/zenodo.13358706**

THE ROLE OF AI IN DEVELOPING ENGLISH

Ina VOLOSCIUC

Lecturer
Moldova State University, Chisinau, RM
orcid id: https://orcid.org/0000-0001-7642-8255

Artificial Intelligence (AI) has rushed into the modern world, revolutionizing certain areas of life. However, AI is no longer science fiction, it is a reality we are dealing with as software and platforms are used daily by all digital humanity. Therefore, the article under consideration is aimed at reflecting on the historical aspects of AI, its role in the development of the English language, focusing on the variety of AI neologisms created under its influence, as well as their identification in online dictionaries.

Key words*: Artificial Intelligence (AI), English language, neologisms, online dictionaries*

"When you have eliminated all which is impossible,
then whatever remains, however improbable, must be the truth."

From Noam Chomsky: The False Promise of ChatGPT,
By Arthur Conan Doyle, "The Case-Book of Sherlock Holmes"

Introduction

Artificial intelligence (AI) writes texts, composes music, generates photographs, monitors security, communicates with people, and gradually controls people's lives. Certain questions that arise with the emergence of this digital revolution deserve to be addressed: How safe is AI? What will be the impact on the human brain if we feel so comfortable using it? What will be the consequences of such "help"? What's next? However, the answers to these questions are to be postponed, and we shall focus on the boost of linguistic possibilities. The dangerous game that was started, on the other hand, opened the gate to even more linguistic creativity and pedagogic benefits that we all enjoy. Thus, various language apps enable to study languages, by using certain algorithms to be adapted to individual learning styles, or apps that provide translations to break down the barriers and enable the global communication, as well as chatbots that generate texts, thus giving solutions to complex questions. Noam Chomsky considers that "ChatGPT and its brethren are constitutionally unable to balance creativity with constraint. They either overgenerate (producing both truths and falsehoods, endorsing ethical and unethical decisions alike) or undergenerate (exhibiting noncommitment to any decisions and indifference to consequences). Given the amorality, faux science and linguistic incompetence of these systems, we can only laugh or cry at their popularity." [1] Therefore, AI should not be idealized, since the modelling of human mental functions by computer programs [2] was created by and for people, that turned into a

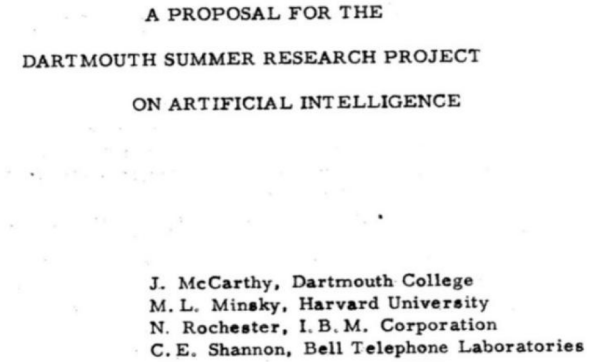
certain surreal parallel world that has revolutionized the way people interact and facilitate their communication possibilities. Noam Chomsky also mentioned [3] "Today our supposedly revolutionary advancements in artificial intelligence are indeed cause for both concern and optimism. Optimism because intelligence is the means by which we solve problems. Concern because we fear that the most popular and fashionable strain of A.I. — machine learning — will degrade our science and debase our ethics by incorporating into our technology a fundamentally flawed conception of language and knowledge." Indeed, the evolution of AI has been marked by both successes and challenges, but ongoing research and technological advancements continue to push the boundaries of what is possible with Artificial Intelligence.

As to my personal encounter with Artificial Intelligence (AI), it was during the Master classes in 2002 when our professor V.I Şmatova enlightened us about an important scientific branch that was emerging and widely discussed among the experts. However, it was narrowly used and students' minds could not fairly appreciate its role and value as the description did not create any associative images in the developing brains, hence, the intuition and professor's insistence highlighted the importance of the term, that sounded more like magic. She was right: Artificial Intelligence has ushered in a new era in the digital world that has provided a lot of educational and creative opportunities.

History

The term "Artificial Intelligence" was coined in 1956 at a conference "sponsored by the Defense Advanced Research Projects Agency (DARPA) to imagine, study, and create machines capable of performing tasks that typically require human cognition and intelligence." [4] within the Dartmouth Summer Research Project on Artificial Intelligence, which became a landmark event for artificial intelligence as a field. The meeting was organized by John McCarthy (see Picture 1), a mathematics professor. In his proposal, he stated that the conference was "to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it." [5]

Picture 1. A Proposal for The Dartmouth Summer Research Project on Artificial Intelligence



A PROPOSAL FOR THE

DARTMOUTH SUMMER RESEARCH PROJECT

ON ARTIFICIAL INTELLIGENCE

J. McCarthy, Dartmouth College
M. L. Minsky, Harvard University
N. Rochester, I. B. M. Corporation
C. E. Shannon, Bell Telephone Laboratories

Early pioneers like Alan Turing and John McCarthy laid the groundwork for AI research, exploring the possibility of creating machines that could think like humans. [6].

José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" [7] restored the chronology of AI development. Thus, in 1967 Joseph Weizenbaum created Eliza, the first significant chatbot and LLM that marked the beginning of work into natural language processing (NLP). Then, in 1980s Google's search algorithm that is a complex mechanism used to retrieve information from its search index and present the information to a given query, which still learns from our search history. It helped stir a revival in machine learning as an AI strategy. In 1990s Deep Learning and Artificial Neural Network research began to grow. The next significant event took place in 1997, when the IBM's DeepBlue beated Garry Kasparov in chess, showing the potential of the extended field. In 2010 DeepMind was founded by Demis Hassabis, Shane Legg, and Mustafa Suleyman. In 2014 Ian Goodfellow proposed Generative Adversarial Networks, which led to many new types of neural networks that are both generative and able to be trained. In 2016 AlphaGo (a machine learning AI from DeepMind) beated world champion Lee Sedol at Go. Then, in 2017 Transformers made it possible to both decode and generate new text, in 2018 First GPT LLM was created by OpenAI, in 2021 DALL-E was built on GPT-3, a machine learning model that generated images. In 2022 GPT-3.5 launched in November; AI apps began to proliferate. In 2023 GPT-4 was released in March, followed by Bard (by Google), Claude (by Anthropic), LLaMA (by Meta) and Grok.

What is AI?

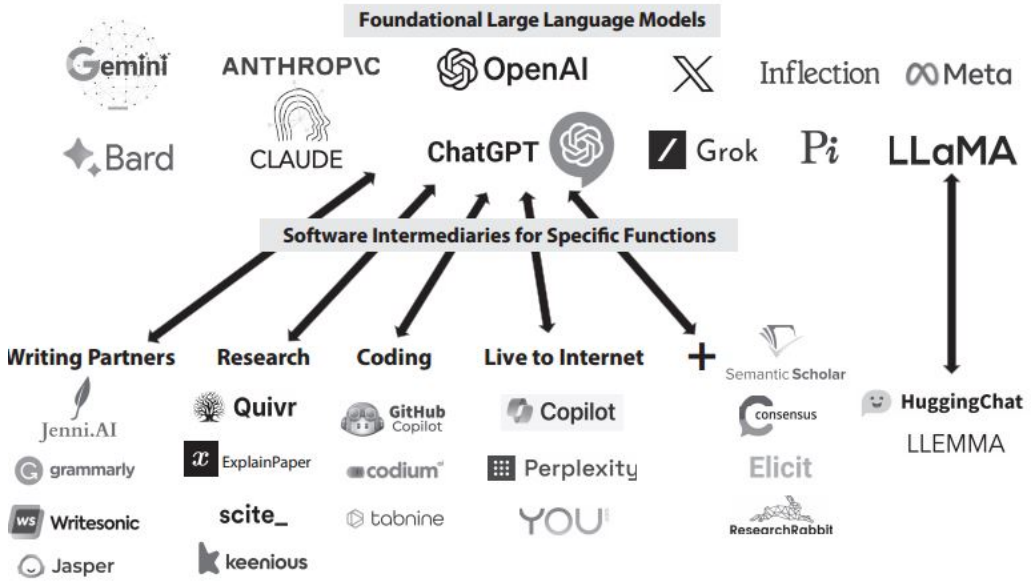
The "Big Five" that includes five British monolingual learner's dictionaries as Oxford Advanced Learner's Dictionary of Current English (OALD9), Longman Dictionary of Contemporary English (LDOCE6), Collins COBUILD Advanced Dictionary of English (COBUILD7), Cambridge Advanced Learner's Dictionary (CALD4) and Macmillan English Dictionary for Advanced Learners (MED2), define Artificial Intelligence as a type of computer technology which is concerned with making machines work in an intelligent way, similar to the way that the human mind works [8], the study and development of computer systems that can copy intelligent human behaviour [9], the use or study of computer systems or machines that have some of the qualities that the human brain has, such as the ability to interpret and produce language in a way that seems human, recognize or create images, solve problems, and learn from data supplied to them [10], the study of how to make computers do intelligent things that people can do, such as think and make decisions [11], as well as the use of computer technology to make computers and other machines think and do things in the way that people can (Macmillan English Dictionary), as we can observe, it is aimed to make machines copy and imitate human brain under experts' guidance.

As to Sundar Pichai, CEO of Google and Alphabet "AI is one of the most important things humanity is working on. It is more profound than electricity or fire." He made this comparison repeatedly, also admitting he did not really know how AI has worked. The Google CEO also mentioned that fire, like other human technological achieve-

ments, has been a double-edged sword; a source of destruction and change as well as an accelerant to advancements. AI is already on a similar trajectory [12].

To render the variety of possibilities José Antonio Bowen and C. Edward Watson [13] present Large Language Models (LLMs), foundational models that were initially focused on language but also created new ways to analyze DNA, music, computer code, and brain waves. Thus, they highlight the big six LLMs we have today: GPT (from OpenAI), PaLM (from Google), LLaMA (from Meta), Claude (from Anthropic), Pi (from Inflection), Grok (from xAI). See Picture 2. The scientists offer to "think of these models as different types of intelligence (like comparing Marie Curie, Maya Angelou, and Cesar Chavez). They are different in neural networks, and they have been trained differently: different (metaphorically) in both nature and nurture." [14]

Picture 2 Foundational Large Language Models (LLM) [15]



Well-deserved Title of the Word-Of-The-Year

Artificial Intelligence has been dictating significant parts of our lives without our knowledge for many years. However, the release of ChatGPT in October 2022 was a turning point of the OpenAI usage, which has developed at high speed, transforming many aspects of modern life. Therefore, AI systems learn from vast amounts of information and learn to identify patterns in it to perform tasks such as conducting a human conversation, analyzing customers' shopping habits to recommend future purchases, creating new content that looks like it was created by a person. It empowers voice-controlled virtual assistants Siri and Alexa and helps Facebook and X (Twitter) decide which social media posts to show to users. While Chatbots such as ChatGPT

can conduct text conversations, DALL-E, can create images from simple text instructions, generative AIs can also make videos and even create music in the style of famous musicians. But these programs sometimes generate inaccurate responses and images and can reproduce biases contained in the source material, such as sexism or racism. [16] Thus, Collins Dictionary named the term as its "word of the year" in 2023. "The grip artificial intelligence has gained over humanity in 2023 - or at least the increase in conversations about whether it will be a force for revolutionary good or apocalyptic destruction - has led AI to be given the title of "word of the year" by the makers of Collins Dictionary". 17]

Neologisms

"Over the past few years, we have been treated to the hypes and busts of blockchains in general, and cryptocurrencies in particular, the virtual-reality metaverse, and the blip of non-fungible tokens." [18] A brilliant sentence, rich in neologisms, new words that transmits the vibes of the modern world was written by Gilles-Maurice de Schryve in her article "Generative AI and Lexicography: The Current State of the Art Using ChatGPT" and published in the International Journal of Lexicography. Here at once we identify *Blockchain* (a system for storing records of transactions using digital currencies, that can be accessed by linked computers. [19]) and *Metaverse* (a proposed version of the internet that incorporates three-dimensional virtual environments [20]).

To facilitate and foster the understanding of the AI field, José Antonio Bowen and C. Edward Watson provide glossaries of new AI terms in their work "Teaching with AI" [21] They start with *Artifcial Intelligence (AI)* (he ability of computer systems to mimic human intelligence and also to the development of such systems), *Expert System* (uses rules and logic to anticipate a wide range of possible scenarios), *Machine Learning* (uses probability and statistics to recognize patterns and generalize), *Neural Networks* (computing systems modeled like the neural connections in the human brain), *Foundational Models* (deep neural networks trained with a large data set using machine learning techniques that mimic human trial and error), *Large Language Models (LLMs)* (foundational models focused on language), *GPT (*stands for Generative Pre-trained Transformers. Foundational models and LLMs all use GPT architecture; it is not unique to OpenAI or ChatGPT.), *Diffusion Models* (a type of foundational model used to create images and video. Tools like DALL-E, Stable Diffusion, Midjourney are trained by adding noise to the training data which the model learns to remove.). Here we ca add *Chatbot (*a computer program that can have conversations with humans [22]), *Nodes* (individual computational units), *GPT-4 Turbo* (the latest generation model. It's more capable, has an updated knowledge cutoff of April 2023 and introduces a 128k context window (the equivalent of 300 pages of text in a single prompt, 128,000 tokens or 96,000 words). [23], *Claude* (100,000 tokens or 75,000 words).

The second glossary given in A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" [24] is *Natural Language Processing (NLP)* (a feld of AI and linguistics that aims to enable machines to understand, interpret and create human language. They are essential for search engines and analyzing your social

media content. LLMs use NLP to train deep neural networks but LLMs are also used in NLP applications.), *Parameters* (internal variables in a neural network that can be tuned or adjusted to change the output), Tokens (the representations of words, parts of words, characters, or punctuation in code and are a focus of NLP), *Transformers (* (or "self-attention") provide every token with a weight that allows tokens to be compared to any other token simultaneously), *Application Programming Interface (API)* (a set of tools for building software applications that can interact with a foundation model. Most of the AI tools and products we are using are not LLMs themselves but are powered by underlying LLMs), *Fine-tuning* (the process of customizing pre-trained foundational models (using an API) to do specifc tasks. There is an ambiguity here, but for most people it is probably close enough to think of ChatGPT as fne-tuned or powered by GPT, and not its own LLM (Google's Bard has a similar relationship to Gemini), *Generative Artificial Intelligence (GAI)* (any type of AI that uses deep learning models to generate or create new content. LLMs and Diffusion Models are both examples of GAI), *Artificial General Intelligence (AGI)* (the computer science holy grail that someday an AI will be able to think, make decisions and even feel like humans can. It's basically a person.)

Conclusion

As we see, technology will continue to evolve, and the tools will change and be increasingly powered by AI [25] that has opened a number of possibilities aimed at promoting learner's autonomy and enhancing learning outcomes. However, we should not overtrust AI and ethical considerations are paramount in AI-driven language learning tools. To conclude with the words of Noam Chomsky, used in The False Promise of ChatGPT, "When you have eliminated all which is impossible, then whatever remains, however improbable, must be the truth" and we see so many improbable AI tools impacting English language development that are becoming the truth.

References:

1. Noam Chomsky: The False Promise of ChatGPT, March 8, 2023, GUEST ESSAY, available https://www.nytimes.com/2023/03/08/opinion/noam-chomsky-chatgpt-ai.html
2. Collins COBUILD Dictionary https://www.collinsdictionary.com/dictionary/english/artificial-intelligence
3. Noam Chomsky: The False Promise of ChatGPT, March 8, 2023, GUEST ESSAY,https://www.nytimes.com/2023/03/08/opinion/noam-chomsky-chatgpt-ai.html
4. THINKING WITH AI p.12
5. Artificial Intelligence Coined at Dartmouth https://home.dartmouth.edu/about/artificial-intelligence-ai-coined-dartmouth
6. Chris Stokel-Walker, "The UK AI Safety Summit, combined with a G7 declaration and US executive order, shows action is happening on AI, but what happens next?", BBC News, 07.11.2023, available https://www.bbc.com/future/article/20231107-why-global-regulation-of-artificial-intelligence-is-still-a-long-way-off
7. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.8-9

8. Collins COBUILD Advanced Dictionary of English https://www.collinsdictionary.com/dictionary/english/artificial-intelligence
9. Oxford Advanced Learner's Dictionary of Current English https://www.oxfordlearnersdictionaries.com/definition/english/artificial-intelligence?q=artificial+intelligence
10. Cambridge Advanced Learner's Dictionary https://dictionary.cambridge.org/dictionary/english/artificial-intelligence
11. Longman Dictionary of Contemporary English https://www.ldoceonline.com/dictionary/artificial-intelligence
12. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.11
13. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.15
14. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.15
15. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.25
16. Shiona McCallum, Chris Vallance, Tom Gerken & Jennifer Clarke, " What is AI, how does it work and what can it be used for?", BBC News, 13.05.2024, available https://www.bbc.co.uk/news/technology-65855333
17. AI named word of the year by Collins Dictionary https://www.bbc.com/news/entertainment-arts-67271252
18. Gilles-Maurice de Schryve "Generative AI and Lexicography: The Current State of the Art Using ChatGPT" International Journal Of Lexicography, 2023, 36, 355–387, available https://doi.org/10.1093/ijl/ecad021 , Advance access publication 3 October 2023
19. Collins COBUILD Dictionary https://www.collinsdictionary.com/dictionary/english/blockchain
20. Collins COBUILD Dictionary https://www.collinsdictionary.com/dictionary/english/metaverse
21. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.16
22. Collins COBUILD Dictionary https://www.collinsdictionary.com/dictionary/english/chatbot
23. OpenAI, GPT-4 Turbo in the OpenAI API https://help.openai.com/en/articles/8555510-gpt-4-turbo-in-the-openai-api
24. José Antonio Bowen and C. Edward Watson in their A PRACTICAL GUIDE TO A NEW ERA OF HUMAN LEARNING "Teaching with AI" , Baltimore, 2024, pp 280, p.22
25. Rachelle Dené Poth, EDUTOPIA, November 9, 2023, available https://www.edutopia.org/article/ai-professional-development-helps-teachers-tech-integration