Google Trends: The Rise of Artificial Intelligence

Google Trends: A mesterséges intelligencia térhódítása

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Abstract: Artificial intelligence is one of the fastest growing areas of technological development today. This study deals with the expansion of artificial intelligence from 2010 to the present day. I used the Google Trends service for data collection. With the help of the service, I investigated what search data we could find for the term artificial intelligence from 2010 to the present day and where the term was searched for the most geographically. Based on searches, 2023 was the breakthrough year for artificial intelligence in Hungary. The counties that stood out in their searches – Hajdú-Bihar (Debrecen), Csongrád-Csanád (Szeged) and Baranya (Pécs) – where universities with a long history operate.

Keywords*: artificial intelligence, Google Trends, past, present, future*

Összefoglalás: A mesterséges intelligencia a technológiai fejlődés egyik leggyorsabban növekvő területe napjainkban. E tanulmány a mesterséges intelligencia térhódításával foglalkozik 2010-től napjainkig. Az adatgyűjtéshez a Google Trends szolgáltatást alkalmaztam. A szolgáltatás segítségével azt vizsgáltam, hogy a mesterséges intelligencia (artifical intelligence) kifejezésre 2010-től napjainkig milyen keresési adatokat találhatunk és területileg hol kerestek rá a legtöbbet a kifejezésre. Hazánkban 2023 volt a mesterséges intelligencia áttörési éve a keresések alapján. Azok a vármegyék emelkedtek ki a kereséseikkel – Hajdú-Bihar (Debrecen), Csongrád-Csanád (Szeged) és Baranya (Pécs) –, ahol nagy múltú egyetemek működnek.

Kulcsszavak*: mesterséges intelligencia, Google Trends, múlt, jelen, jövő*

1. Introduction

Artificial intelligence (AI, i.e. Artificial Intelligence) plays an increasingly important role in all areas of life, be it transport, customer service, healthcare, agriculture, education, and more. It is applied to real, practical problems and challenges not only in academic life. Artificial intelligence is slowly appearing in almost all industries and is becoming a determining factor in competitiveness.

In 1956, a small group of scientists came together in the Dartmouth Summer Research Project on Artificial Intelligence, which was the basis for the birth of this field of research (McCarthy et al., 1955). The term artificial intelligence was coined at this scientific conference. Minsky defined artificial intelligence as the science of making machines do things that would require intelligence if done by humans (Dennis, 2024). According to Shirai and Tsujii (1987), the goal of artificial intelligence research is to make computers capable of performing tasks that can be solved with human intelligence. The essence of these definitions still stands today. Today's computer scientists define it as a system that can sense its environment and take action

to maximize the chance of achieving goals, and is able to interpret and analyze data to learn and adapt (SAP, 2024).

Artificial intelligence is advancing at such a pace and scale that it is important to consider ethical guidelines and care in the face of an AI that may surpass us in almost every measurable way. Stephen Hawking advises that due to its great potential, it is important to research how to exploit the benefits of artificial intelligence and avoid its dangers (SAP, 2024). Artificial intelligence can make a big difference in our lives, for better or for worse.

The EU supports the development of technology based on artificial intelligence, but is also aware of its potential risks, which is why it advocated legislation regarding the technology. In April 2021, the European Commission proposed the first EU regulatory framework for artificial intelligence (European Commission, 2021). More and more companies are realizing that the responsible use and application of artificial intelligence can lead to better business results. Company owners and managers will see how the upfront investment in artificial intelligence pays off for them. Of course, for this, they have to properly apply well-structured artificial intelligence principles (Netlife Robotics, 2024).

2. Materials and Methods

This study deals with the expansion of artificial intelligence. I used the Google Trends service for data collection. Google Trends is a Google service that processes and reports past and current Google search data.

With the help of the service, I investigated what search results we get for the term artificial intelligence from 2010 (01.01.2010) to the present day (2024.02.29) in terms of numbers and territories worldwide, as well as in our country in all categories

3. Results

Figure 1 shows the results of searches for the term "artificial intelligence" worldwide from 2010 to 2024. There were several highlights of the search data. The search data for November 2017 (74), May 2023 (94) and February 2024 (100) stood out on the graph. In Forbes magazine, Venkatachalam (2017) called 2017 the year of artificial intelligence. McKinsey & Company (2023) called 2023 the breakout year of generative artificial intelligence. In January 2024 - after nearly three years of debate - the European Commission adopted the AI Act, which outlined strategies for developing its own capabilities in the field of artificial intelligence, while at the same time emphasizing the importance of safe, transparent and human-centered use of artificial intelligence technologies (European Commission, 2024).

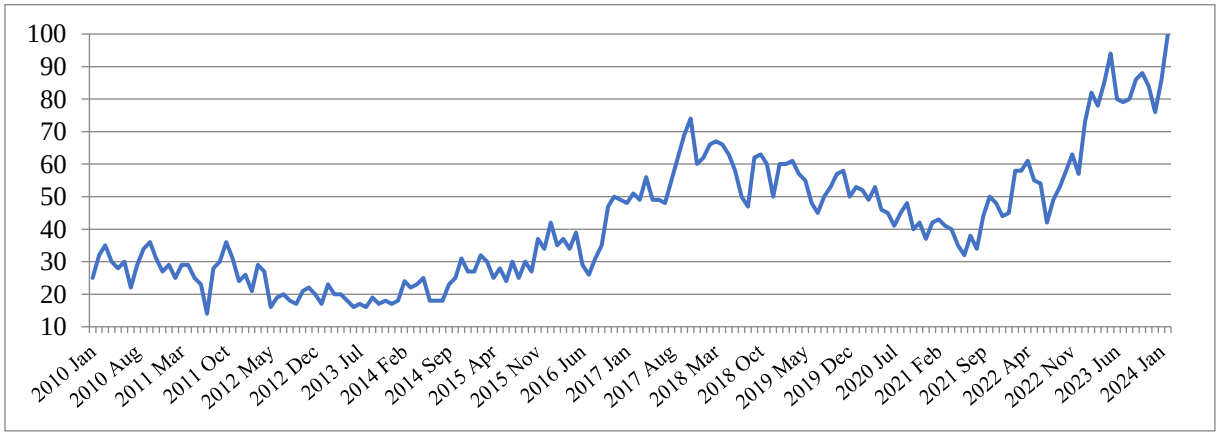

Figure 1. *Interest by time, worldwide, 2010-2024*

Figure 2 illustrates searches for the term "artificial intelligence" worldwide, by country, from 2010 to 2024. Based on the search data, the TOP 5 countries are: Ethiopia (100), Pakistan (39), Singapore (24), Nepal (24), and United Arab Emirates (21). Ethiopia is promoting itself as Africa's leading artificial intelligence player. The Ethiopian Artificial Intelligence Institute (https://www.aii.et/) was established and operates in Addis Ababa. Its goal is to become a state-of-the-art artificial intelligence centre by 2030, which would play a key role in the creation of innovative artificial intelligence-based solutions at the national and international level. The mission of Pakistan's Presidential Initiative on Artificial Intelligence and Computing is to transform Pakistan by revolutionizing education, research and business by introducing the latest cutting-edge technologies. Their goal is to become a global centre for artificial intelligence, data science, cloud-native computing, block chain, and augmented reality (https://www.piaic.org/). AI Singapore was launched in May 2017, bringing together all Singaporean research institutes, as well as an ecosystem of artificial intelligence start-ups and companies developing artificial intelligence products, to carry out user-inspired research, increase knowledge, create tools and develop the capabilities necessary for the operation of artificial intelligence in Singapore (https://aisingapore.org/).

Figure 2. *Interest by country, worldwide, 2010-2024*

Figure 3 shows searches for the term "artificial intelligence" worldwide by city from 2010 to 2024. Ethiopia's Addis Ababa (100), Pakistan's Rawalpindi (79), Islamabad (70), Lahore (54) and Karachi (50), India's Gurgaon (58) and Noida (50), Australia's Canberra (54), United States' Cambridge (54). Knowing the above, it became clear why these cities appeared on the map. In Islamabad, Lahore and Karachi, they train certified cloud-based generative artificial intelligence engineers (Certified Cloud Applied Generative AI Engineer). The UNSW Canberra AI Hub brings together over 80 academics with expertise in engineering, science, business and the humanities. ADFA@UNSW Canberra provides world-leading education and research for Australia's Defence Forces (https://www.unsw.edu.au/).

Figure 3. *Interest by city, worldwide, 2010-2024*

The domestic Artificial Intelligence Coalition was founded in October 2018. The goal of the Coalition, which includes nearly 70 Hungarian and international companies, universities, scientific workshops, professional and administrative organizations, is to put Hungary at the forefront of Europe, becoming an important member of the international artificial intelligence community (https://mik.neum.hu/).

Figure 4 illustrates searches for the term artificial intelligence in Hungary from 2010 to 2024. The graph shows the jump to the term artificial intelligence in March 2023 (100) in the examined period, i.e. outstanding search data. From January 2023 (67), it can be seen that the number of people searching for the term has increased significantly. In the previous period, the number of searches ranged from 0 to 20 (8 on average).

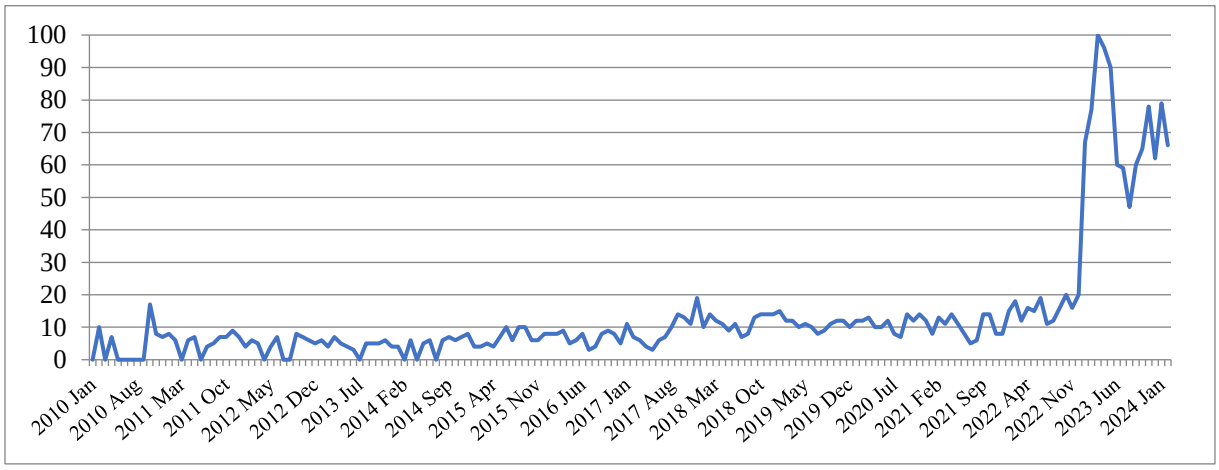

Figure 4. *Interest by time, Hungary, 2010-2024*

Figure 5 illustrates searches for the term artificial intelligence in Hungary by county from 2010 to 2024. Looking at the map, it can be seen that, in general, most people searched for the term artificial intelligence in those counties that have a university town, such as TOP 3: Hajdú-Bihar (Debrecen, 100), Csongrád-Csanád (Szeged, 96) and Baranya (Pécs, 90).

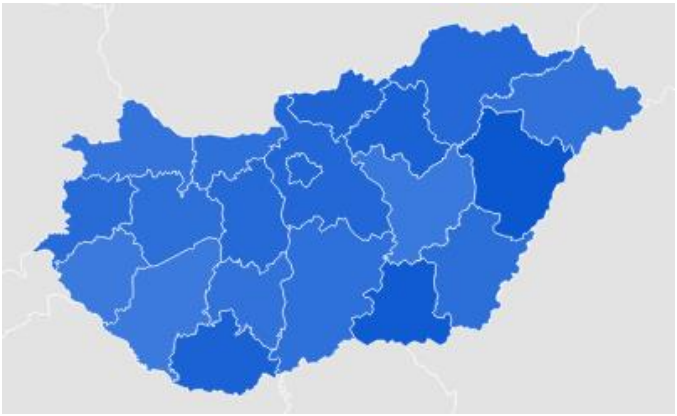

Figure 5. *Interest by country, Hungary, 2010-2024*

4. Discussion

Artificial intelligence is gaining more and more space in everyday life; its increasing use is influencing the social and economic shift towards increased automation, data-centric decision-making and the integration of artificial intelligence systems in various economic sectors, as well as in everyday life areas, which has an impact on labour markets, healthcare, government, industry, education, etc. At the same time, this raises questions about the ethical aspects and risks of artificial intelligence, as well as sparks debates about regulatory policies that ensure the safety and benefits of the technology. The European Union was the first to advocate the regulation of artificial intelligence in 2021. Three years later, the European Commission adopted the AI Act.

5. Conclusions

Analyzing with the help of Google Trends, we can come to the conclusion that artificial intelligence came to the fore globally from 2017 on the basis of Google searches, with Ethiopia and Pakistan standing out among the countries. Artificial intelligence already has a strong institutional background in these countries. The achievements of artificial intelligence are used in all areas of life.

Based on searches, 2023 was the breakthrough year for artificial intelligence in Hungary. The counties that stood out in their searches – Hajdú-Bihar (Debrecen), Csongrád-Csanád (Szeged) and Baranya (Pécs) – where universities with a long history operate.

Looking into the future, artificial intelligence can become a general reality, with the help of which they can change the world. We can begin to expand and improve it and predict the future according to Venkatachalam (2017).

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