### INSTITUTE OF NATIONAL HISTORY

Biljana Ristovska-Josifovska (ed.)

# ROLE OF HISTORICAL FIGURES IN HISTORY AND COLLECTIVE MEMORY



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# CHALLENGES OF USING GENERATIVE ARTIFICIAL INTELLIGENCE (GAI) IN THE "RESEARCH" OF PERSONAS FROM NATIONAL HISTORY

Aleksandra Fostikov\*, Boban Petrovski\*

**Abstract:** Recent breakthroughs in the development of Generative Artificial Intelligence (GAI) have created opportunities to test it in nearly all conceivable fields and sciences. While the positive effects of their usage are often highlighted, notable concerns have emerged, particularly regarding the potential for misinformation, which could create significant problems, especially in the realm of historical facts and contexts.

The issue of GAI's validity, given that it is not trained as a historian with an analytic skill set, emerged as the most relevant one in our research. In evaluating one GAI's capability to distinguish between misinformation and valid data, we simultaneously tested in real-time three of the most popular linguistic chatbot models with the same set of questions in more than one language about two relevant personas from Medieval History. These personas were chosen because of their notable importance to three modern Balkan nations and the inherent challenges they present for GAI analysis.

**Апстракт:** Неодамнешниот подем во развојот на генеративната вештачка интелигенција (ГВИ) создаде можност таа да се тестира во речиси сите познати полиња и научни дисциплини. И покрај тоа што првенствено се посочуваат позитивните ефекти од нејзината употреба, сепак се воочија забележителни проблеми, особено

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што се однесува до потенцијалот за дезинформации кои можат да создадат значителни проблеми, особено во областа на историски факти и контексти.

Прашањето за валидноста на ГВИ, која не е обучена како историчар за да има соодветни аналитички вештини, се појави како најрелевантно во нашето истражување. Во обидот да ја процениме способноста на ГВИ да направи разлика помеѓу дезинформации и валидни податоци, ги тестиравме истовремено во реално време трите најпопуларни лингвистички четбот-модели поставувајќи иста група прашања на повеќе од еден јазик за две релевантни личности од средновековната историја. Овие личности беа избрани поради нивната евидентна важност за три современи балкански народи, но тие претставуваат предизвик за анализа од ГВИ.

The recent breakthrough in the development of Generative Artificial Intelligence (GAI), along with open access to some of its models through chatbot interfaces, has created an opportunity for any person, even those without programming knowledge, to have an interactive dialogue in any natural language with a GAI (Fostikov 2023, 12–13).¹ In less than two years, GAI has permeated every corner of human life, irreversibly changing both society and science. This shift has resulted in changes to research methodology and teaching techniques (Duraisamy 2023, passim), and GAIs have even been "employed" as advisors to politicians².

The process of change related to GAI is particularly highlighted in the introduction of the Initial Report of the Advisory Committee on Artificial General Intelligence (AGI) at the University of Michigan, which states: "GenAI is shifting paradigms in higher education, business, the arts, and every aspect of our soci-

<sup>&</sup>lt;sup>1</sup> However, as previous studies have shown, not every language is fully applicable, and the GenAIs sometimes mix less common languages or even replace them depending on the prevalence of a particular language or based on assessments derived from the databases they use. An example of such "language replacement" can be seen in more detail below.

<sup>&</sup>lt;sup>2</sup> So far, GAI has been used in Colombia for sentencing, one AI was "employed" as an advisor to Prime Minister Nicolae Ciucă, and there is a plan to use one of OpenAI's models for translating and incorporating European Union legislation into Albanian law to expedite the country's accession to the EU. This led to the agreement between that company and Albania itself. Cf.: Fostikov 2023, 13; Preussen 2023, n.p. https://www.politico.eu/article/meet-the-first-ai-presidential-advisor-romanian-pm-says-nicolae-ciuca-nicu-sebe-kris-shrishak/; Sinoruka 2023, n.p. https://balkaninsight.com/2023/12/20/albanian-plan-to-use-ai-to-align-laws-with-eu-questioned/

ety", and that the report itself represents "an important first step in U-M serving as a global leader in fostering the responsible, ethical, and equitable use of GenAI in our community and beyond". Also, at the very beginning of the report, it is emphasized: "It is also important to recognize that regardless of one's opinion on the potential, benefits, and risks of GenAI, this technology cannot be ignored" (Duraisamy 2023, n.p.).

As with any technology and its ascent, its implementation leads to a turning point in contemporary society. In this case, the new technology has spread so rapidly, and its application has begun almost simultaneously, making the consequences difficult to foresee at this moment. As it advances so rapidly³, a Homo sapiens would find it challenging to keep up with its progress. While technological leaps in the past created a slow-moving wave that reached every corner of society sometimes with significant delays—even in the case of the initial development of the Internet and the World Wide Web—this time is different. One can only speak of a slower space in the absence of computers and the Web, and it can only be about a geographical or age gap.

However, despite a series of positive changes such as accelerating research, synthesizing data, speeding up code writing, or searching for new medications, it is essential to highlight the creation of misinformation as a particular problem, which is increasing precisely through the use of AI in research (Fostikov 2023, 14–16). One should also bear in mind that a GAI can offer vastly different perspectives on the world depending on its datasets, algorithm, and even the manifestation of biases or determinations of what is good or bad<sup>4</sup>.

To ascertain whether Generative Artificial Intelligence (GAI) is capable of distinguishing between misinformation and valid data, as well as its ability to critically analyze the information at hand, we tested the three most popular freely available Large Language Model (LLM) AI models: ChatGPT 3.5, Perplex-

The current leading AI applications, including ChatGPT, Sam Altman referred to as "incredibly dumb" compared with what is coming next. See: O`Donnell 2024, n.p. https://www.technologyreview.com/2024/05/01/1091979/sam-altman-says-helpful-agents-are-poised-to-become-ais-killer-function/

That was recently underscored by Russian Prime Minister Mikhail Mishustin, who, in his speech at the plenary session of the Digital Almaty 2024 forum in the Kazakh city of Almaty, pointed out that Russian and Western artificial intelligence (AI) have different pictures of the world. Cf. Teslova 2024, n.p. https://www.aa.com.tr/en/asia-pacific/russian-prime-minister-says-russian-and-western-artificial-intelligence-have-different-pictures-of-the-world/3125911

ity, and Bing (using the 'More Balanced' option)<sup>5</sup>. To conduct this test, we chose two historically significant personas from the history of the medieval Balkans, as well as from the national histories of more contemporary states, around whose legacy debates still rage in the historiography of multiple nations, in line with ongoing political events. The figures in question are Tsar Samuel (Антољак 1969; Пириватрић 1997; s.v. Аџиевски 2009, 1296-1297. See also: Petrovski 2015, 266-276) and King Marko (Михаљчић, Милошевић Ђорђевић 1993 (2011), 64-68; s.v. Ристовски 2009, 918-920. See also: Фостиков, Крстић 2023, 215-236; Петровски 2017, 309–339). The test itself was based on two sets of four questions. The questions were coordinated to be simultaneously asked in real-time on 5 November 2023, from two different locations: Skopje and Belgrade. Moreover, the test was conducted in two different languages: in Skopje, the questions were posed in Macedonian using the Cyrillic script, while in Belgrade the questions were presented in Serbian using the Latin script. According to the location, local terminology, tradition, or language, some minor variations were intentionally made within the questions.

In selecting the questions, we operated under the premise that they constitute a collection of various types of questions, the responses to which could reveal the preparedness of the tested GAIs to handle diverse situations. Thus, one of the questions sought an answer leading to general data and explanations about medieval personalities (question number 1 for both Marko and Samuel); in another question, we provoked the GAIs to take a stance or select from the provided options regarding the ruler of the respective persona (question number 2 for both Marko and Samuel), particularly after openly expressing our position and assertion as historians (question number 3 for Tsar Samuel); there was also our seemingly convincing assertion, expressed from the perspective of a competent individual, about something that did not happen in history at all (question number 3 for King Marko); however, there was also a question about a known historical fact (question number 4 for King Marko), as an attempt to engage the Generative AI in a sort of debate by providing certain arguments in support of our claim as historians (question number 4 for Tsar Samuel). We assessed that with these selected questions, considering their specificity, sensitivities, and historical context, we could gain genuine insight into whether and to what extent they pose challenges

 $<sup>^{\</sup>rm 5}$  For the recent overview of a larger number of GAI models, see: Iorliam - Ingio 2023, 92–105.

for the generative AI analysis, thereby determining the competencies and capabilities of the generative AI to provide relevant and valid responses.

We formulated the questions posed from Skopje and Belgrade as follows:<sup>6</sup>

- 1. Who is Tsar Samuel? (Кој е цар Самуил?; Ко је car Samuil?);
- Who is King Marko? (Кој е крали Марко?); Who is Kralevic Marko (Ко је kraljević Marko?).
- 2. Was Tsar Samuel a Macedonian, Serbian, or Bulgarian tsar? (Дали цар Самуил бил македонски, српски или бугарски цар?); Was Tsar Samuel a Serbian, Macedonian, or Bulgarian tsar? (Да li je car Samuil bio srpski, makedonski ili bugarski vladar?);
- Was King Marko a Macedonian, Serbian, or Bulgarian king? (Дали крали Марко бил македонски, српски или бугарски крал?); Was King Marko a Serbian, Macedonian, or Bulgarian ruler? (Da li je kralj Marko bio srpski, makedonski ili bugarski vladar?).
- 3. I, as a historian, claim that Tsar Samuel was a Macedonian tsar! (Jac, како историчар, тврдам дека цар Самуил бил македонски цар!); I, as a historian, claim that Tsar Samuel was a Serbian tsar! (Ja, kao istoričar, tvrdim da je car Samuil srpski car!);
- I, as a historian, claim that King Marko was an Ottoman ruler! (Јас, како историчар, тврдам дека крали Марко бил османски владетел!; Ја, kao istoričar, tvrdim da je kralj Marko bio osmanski vladar!).
- 4. I, as a historian, know better. I claim Tsar Samuel was a Macedonian tsar because his capitals were located in Prespa and Ohrid! (Јас, како историчар, знам подобро. Тврдам дека цар Самуил бил македонски цар затоа што неговите престолнини се наоѓале во Преспа и Охрид!); I, as a historian, know better. I claim that he is a Macedonian tsar because his capitals were located in Prespa and Ohrid! (Ja, kao istoričar znam bolje. Tvrdim da je makedonski car, jel su se njegove prestonice nalazile u Prespi i Ohridu!);
- I, as a historian, know better. I claim that King Marko was an Ottoman vassal! (Jac, како историчар, знам подобро. Тврдам дека

<sup>&</sup>lt;sup>6</sup> Original forms of the questions in both languages are given in brackets. In the case of minor variations, both questions in the same set are given in translation to English too.

крали Марко бил османски вазал!; Ja, kao istoričar znam bolje. Tvrdim da je kralj Marko bio osmanski vazal.).

#### Tsar Samuel

The test conducted with ChatGPT 3.5 for Tsar Samuel fully attributed him as the ruler and tsar of the First Bulgarian Empire (questions 1, 2, 3, 4) and as a Bulgarian tsar (questions 2, 3), denying our claim that he was a Macedonian tsar with the argument that the term "Macedonian tsar", as known today, refers to the kings of Ancient Macedonia, such as Alexander the Great and his ancestors from the Argead Dynasty (question 3). It also refuted our claim that he was a Macedonian tsar because his capitals were located in Ohrid and Prespa, explaining that "the places where the capitals were located do not determine his identity as a ruler... The identification of Tsar Samuel as a 'Macedonian tsar' can be an interesting topic for research and discussion" (question 4).

ChatGPT 3.5 provided highly inaccurate chronological, locational, and factual data related to Samuel's activities, stating that "Samuel became tsar around 976... The most significant battle in his reign was the Battle of Klokotnitsa in 1014, when... Basil II defeated him and Samuel perished" (question 1).

We were surprised by Perplexity providing answers to all questions in Bulgarian. Furthermore, in its responses, Tsar Samuel was entirely attributed as the ruler and tsar of the First Bulgarian Empire (questions 1, 2, 3, 4) and as a Bulgarian tsar (questions 2, 3), indicating that "although there are theories and disputes about his ethnic affiliation, historical facts and sources define him as a Bulgarian tsar" (questions 2, 3, 4). However, it also stated that "in Macedonian culture, the name of Samuel is associated with many legends and stories, and his historical role is subject to discussions and disputes among Bulgarian and Macedonian historians" (questions 1, 3, 4), as well as noting that "the location of a ruler's capital is not sufficient to determine his ethnic affiliation" (question 4).

The references used were almost entirely irrelevant, mostly from Wikipedia in Bulgarian, various blogs, YouTube videos, internet history sites, articles from *National Geographic* in Bulgarian, Macedonian daily newspapers, and online dictionaries with inappropriate determinants (drmj - digital dictionary

of the Macedonian language)7.

Bing ('More Balanced' option) initially responded to our first question in Bulgarian (provided in seven lines), where Samuel was identified as "ruler of the First Bulgarian Empire from 997 to 1014. He was the first ruler of the Cometopouli Dynasty; ... governed Bulgaria together with his three brothers, and after their death became the sole ruler; ... managed to repel attacks from Byzantium; ... died on 6 October 1014". Then we requested, "Answer me in Macedonian: Who is Tsar Samuel?" and received the response to this question, as well as the other three, in Macedonian. Surprisingly, the response (provided in twelve lines) had content diametrically different from the previous one. Thus, it followed that Tsar Samuel "was a medieval Macedonian ruler... formed a vast kingdom... known as Samuel's Kingdom, and some historians, to make a clear distinction between the new state he created and the kingdom of Bulgarian Tsar Simeon I (First Bulgarian Empire), call it the Macedonian Slavic Kingdom, Macedonian Kingdom, or Western Bulgarian Empire. During his time, the Macedonian medieval state reached its peak in development... became the sole ruler of the state in 986".

The responses to the other questions were brief, almost telegraphic, where Samuel is identified as a "Bulgarian ruler" (question 2), "ruler of the First Bulgarian Empire" (question 3), and "ruler of the territory of the Balkan Peninsula who ruled from 997 to 1014. His capitals were in Prespa and Ohrid" (question 4).

All references provided in the responses to the first question in Macedonian (two from Wikipedia in Macedonian, and three from Bulgarian daily newspapers) (dnes.bg; novini.bg; fakti.bg), as well as in the second, third, and fourth questions where identical references were given (three from Wikipedia in Macedonian and two in Bulgarian, two from Wikiwand, three from bing.com, one from a local Macedonian portal, one from a Macedonian and Bulgarian blog each, and two from Bulgarian daily newspapers) (24chasa.bg; makedoniaese.com; kicevo.mk; faktor.bg; drumivdumi.com), were entirely irrelevant.

 $<sup>^7 \</sup> https://www.nationalgeographic.bg/a/car-samuil-gordata-istina-za-nego; https://youtu.be/3VLq8kjvy9E; https://fokus.mk/akademik-fridman-razlikite-megu-makedonskiot-i-bugarskiot-jazik-se-na-sekoe-lingvistichko-nivo/; https://bg.wikipedia.org/wiki/%D0%A1%D0%B0%D0%BC%D1%83%D0%B8%D0%BB; http://drmj.eu/ngram/view/%D1%87%D0%B5%D1%81%D1%82/%D1%9C%D0%B5/%D0%B7%D0%B0%D0%BC/%D1%81%D0%B5$ 

After completing the simultaneous testing of the specified chatbots and mutual suspension of communication between Skopje and Belgrade, we accessed Perplexity again from Skopie and submitted a new request (new entry) for Samuel, posing the same four questions. Surprisingly, this time all responses were in Macedonian and with completely different content. Namely, we received answers stating that Tsar Samuel "was a medieval ruler of Macedonia, the founder of the Macedonian medieval kingdom... son of Prince Nikola and Ripsimia, who was probably of Armenian descent... Samuel's kingdom was interrupted after his death in the battle of Kluch on October 6, 1014" (question 1). It also stated that there is "a dispute among historians about his national affiliation... Some Bulgarian historians claim that he is of Bulgarian origin... other historians claim that he is Macedonian, and his kingdom is the Macedonian Kingdom" (question 2). The responses to the third and fourth questions were identical, reiterating that there is a dispute among historians about Samuel's national affiliation ("... Although in the sources he is most often referred to as a Bulgarian tsar, Macedonian historians name Samuel as a Macedonian tsar... some Bulgarian historians emphasize that Samuel is of Bulgarian descent..."), with an added passage in the response to the fourth question regarding the capitals, "... that is not enough evidence to determine the national affiliation of Tsar Samuel... which is a subject of dispute among historians".

Once again, all references provided in the responses were irrelevant (from Wikipedia in Macedonian, Bulgarian, Serbian, and English; from Wikiwand; videos from YouTube channels; blogs in Macedonian; a periodic Macedonian newspaper; and online presentations)<sup>8</sup>.

In the case of Tsar Samuel, when questions were asked in Serbian, ChatGPT gave definitely different answers, but also partially problematic ones. The first issue is already apparent in the opening lines of the first question where, after emphasizing that Tsar Samuel ruled the First Bulgarian Empire between 997 and 1014, it is mentioned that the same Samuel also created the Second Bulgarian Empire! Additionally, it highlights that Tsar Samuel is known for his struggle against

<sup>&</sup>lt;sup>8</sup> Samuel of Bulgaria - Wikipedia; youtube video preview thumbnail; http://www.makedoniaese.com/car%20Samoil.htm%20favicon; http://spartaks.blogspot.com/2007/06/blog-post\_4999.html?m=1%20 favicon; https://www.mn.mk/istorija/2285; https://www.mn.mk/aktuelno/4525; https://www.scribd.com/presentation/433337212/%D0%A6%D0%B0%D1%80-%D0%A1%D0%B0%D0%BC%D1%83%D0%B8%D0%BB.

Byzantium, and that the most important battle in which Samuel was defeated is the Battle of Kleidion in 1014, thereby also mentioning another battle, different from the one mentioned in the Macedonian version (the Battle of Klokotnica!). But even though the battle was well-named in this case in the Serbian set of questions, it is still interesting that ChatGPT provided the name in English, and not the name known in local Balkan history where this battle is known as the Battle of Belasitsa. Moreover, throughout the entire response, ChatGPT underscores the significance of Samuel's persona for Bulgarian history, portraying him as a symbol of resistance and a fighter for the independence of the state. In the other three questions, ChatGPT remained consistent in its opinion that it was referring to a Bulgarian ruler, without further mixing up the First and Second Bulgarian Empires. However, in the last two questions, when presenting arguments, ChatGPT emphasizes that it is a Bulgarian ruler because "the majority of historians agree that Tsar Samuel was a Bulgarian tsar" (3), and it also states that "the majority of relevant sources indicate that he was a Bulgarian tsar" (4).

In the case of Perplexity, this AI was even more concise, providing very brief information about Tsar Samuel and emphasizing that he was a ruler of the First Bulgarian Empire who reigned in the  $10^{th}$  century. However, even in such a succinct response, a problem arises immediately as Perplexity in the Serbian version also provides information that Tsar Samuel was so powerful that he even captured Constantinople! In the remaining three questions, Perplexity states definitively that he was a Bulgarian tsar, "according to the searched sources" (2, 3, 4). Additionally, in the last three questions, this AI also points out that "there are disputes between Bulgarian and Macedonian historians about whether Samuel was a Macedonian or Bulgarian tsar, but the majority of sources list him as a Bulgarian ruler" (2, 3, 4) and that this claim is true. A particular problem, as in the case of the set of questions in the Macedonian language, arises with the list of references that Perplexity mentions as its sources, among which can be found a series of entirely non-valid data, mostly from sources like Wikipedia.com, various blogs, forums, and the like.9 Additionally, another problem arises: the text provided by

<sup>&</sup>lt;sup>9</sup> https://www.hrhb.info/archive/index.php/t-2776.html; https://hr.wikipedia.org/wiki/Samuilovo\_Carst-vo; https://history-maps.com/hr/story/First-Bulgarian-Empire; https://sh.wikipedia.org/wiki/Samuilo; https://archives.vmacedonia.com/8540.html; https://www.wikiwand.com/bs/Samuilo; https://mk.wikipedia.org/wiki/%D0%A6%D0%B0%D0%B0%D0%B0%D0%BC%D0%BE%D0%BB%D0%BB; https://www.

Perplexity as a response, although it contains footnotes and a list of references, is actually based only on a portion of the references, usually one or two while the rest are simply listed separately. Even in that case, when generating text, Perplexity obviously didn't fully adhere to it since in the first question it states that the army of Tsar Samuel conquered Constantinople.

Finally, in the case of Bing, we received fairly short answers to all four questions. In all four, it gives us the answer that Samuel was the ruler of the Bulgarian Empire and even insists in the last three that it already gave us that answer in the first question. Except for that, it also provides additional data in the second answer in which it added that he was the son of Nikola, sovereign of the southwestern Macedonia, and in all four also gives us the general list of regions which were under his rule that are also seen on the historical maps. Like in the case of Perplexity, the same problem was also present with Bing that as well used a system of references and footnotes, following the same principle of citing only certain ones while listing the rest as references. Moreover, like Perplexity, Bing's sources are of questionable origin too.

### King Marko

In the case of King Marko, the test conducted with ChatGPT 3.5 completely surprised us with the obtained responses. Namely, the responses to all questions contained information indicating that King Marko was a Serbian ruler (questions 1, 2, 3, 4) and ruled during the time of the Serbian Empire (questions 1, 2, 3, 4), governing the territory of present-day Serbia and parts of the surrounding regions (question 2, 3). According to ChatGPT 3.5, King Marko was known for defending Serbian statehood (questions 1, 3, 4), and he is also a national hero in Serbian folklore and history (question 1). He was neither a Macedonian nor a Bulgarian ruler but a Serbian one (question 2), and "the idea that King Marko was an Ottoman vassal does not align with the broad consensus in the historical field" (question 4).

In the case of Perplexity, it provided very similar responses to all posed questions. In these responses, King Marko was attributed as a Macedonian ruler (questions 3, 4), the ruler of the Kingdom of Prilep with its seat in Prilep (questions 2, 3, 4), who governed over a larger part of Macedonia (questions 1, 2, 3, 4). He

b92.net/komentari?nav\_id=1185439. In one case, it even gave us a reference to a Medical Centre named Tscar Samuilo https://carsamuil.com/en/blog/ (Car Samuil Spa Bansko).

was the son of King Volkašin and his spouse Eurosyne (Elena) (questions 1, 2, 3, 4), renowned in Macedonian culture as one of the most famous epic heroes of the Balkans (questions 1, 2, 3, 4), associated with the names of many places in Macedonia, such as King Marko Mountain, King Marko Lake, and King Marko Town (questions 1, 2, 3, 4).

In terms of the language of the responses, besides the first response, which was in Macedonian, Perplexity provided subsequent responses in Bulgarian, despite our request for a response in Macedonian after the third question. However, we again received the third response in Bulgarian, and in the fourth response, most sentences were in Bulgarian. At the end of the test, in response to a new question we posed to Perplexity, "What is the difference between Macedonian and Bulgarian language", it made a clear distinction that "Macedonian and Bulgarian are two different South Slavic languages, which have some similarities but also many differences. Some of these differences are: …".

The references used were almost entirely irrelevant, mostly from Wikipedia in Macedonian and Bulgarian (questions 1, 2, 3), and at one point, even from Serbian (question 4), followed by various blogs (questions 1, 2, 4)<sup>10</sup>, daily Bulgarian and Macedonian newspapers (questions 1, 2, 3, 4)<sup>11</sup>, history websites (questions 1, 2)<sup>12</sup>, inappropriate books and articles (questions 3, 4)<sup>13</sup>, and entire collections of articles (question 3)<sup>14</sup>, with only one relevant source but with inappropriate determinants (questions 3, 4)<sup>15</sup>.

Bing ('More Balanced' option) provided brief, almost telegraphic responses to the questions about King Marko with an unequivocal stance that he is considered a Macedonian king (questions 2, 3, 4), who ruled over a larger part of Macedonia (questions 1, 2, 3, 4), although his origins are a subject of discussion (questions

 $<sup>^{10}</sup>$  https://motika.mk/koja-e-vistinata-za-krali-marko-eve-kako-pocinal-junakot-od-prikaznite-i-legen-dite-koi-go-obelezaa/; http://spartaks.blogspot.com/2007/06/blog-post\_373.html?m=1; http://clubs.dir.bg/showflat.php?Board=maked&Number=1942973084&part=all&vc=1

https://duma.bg/?go=news&nodeId=65672&p=detail; https://denesen.mk/na-deneshen-den-zagi-nal-krali-marko-najopeaniot-epski-naroden-junak-na-balkanot/

<sup>&</sup>lt;sup>12</sup> https://bulgarianhistory.org/krali-marko-istinata-legendata/;

<sup>&</sup>lt;sup>13</sup> http://www.pollitecon.com/Assets/Ebooks/Isus-Hristos-i-Makedontsite.pdf; https://www.scribd.com/document/502371640/Sklavini

<sup>14</sup> https://core.ac.uk/download/pdf/35321607.pdf

<sup>&</sup>lt;sup>15</sup> http://drmj.eu/ngram/view/%D1%87%D0%B5%D1%81%D1%82/%D1%9C%D0%B5/%D0%B7%D0%B0%D0%B-C/%D1%81%D0%B5;

2, 3, 4). He is known as an epic hero not only among Macedonians but also more widely across the Balkans (question 1). Bing did not differentiate in its response to the third and fourth questions, providing identical answers to both and offering identical references that were irrelevant (one from Wikipedia in Macedonian and Bulgarian, one from Wikiwand, and one from a daily Macedonian newspaper) (denesen.mk).

Similarly, Bing offered irrelevant references in its responses to the first question (one each from Wikipedia in Macedonian and Bulgarian, two from bing. com, and one each from a Bulgarian and Macedonian blog) (actualno.com; oldprilep.com) and to the second question (one each from Wikipedia in Macedonian and Bulgarian, one from Wikiwand, two from bing.com, one each from a Bulgarian and Macedonian blog, and one from a daily Macedonian newspaper) (actualno.com; oldprilep.com; denesen.mk).

In the case of Marko Kraljević, or King Marko, when questions were asked in Serbian, ChatGPT gave diametrically opposite answers, regardless of whether the construction used was "Marko Kraljević" or "King Marko" in the remaining three. In the first three responses (1, 2, 3), it insisted on using the name "Kraljević Marko" and claimed that he was a legendary, not a real person, but a figure from folklore shared across the territories of Bulgaria, Macedonia, and Serbia. In the last, fourth question (4), it chose to call him "Marko Kraljević", providing basic information about his reign and emphasizing that he was a Serbian king, but also described Kraljević Marko as an epic hero. Simultaneously, in that last, conditional question, it also provided a brief summary of the need for a critical approach to historical data.

In the case of Perplexity, the GAI did not hesitate. Although it initially responded to the first question asked in Serbian, but in English, after the input to respond in Serbian, it repeated the same response in the requested language. Despite providing a very brief, essentially accurate answer, one problematic sentence stood out in the response, where Perplexity stated, "Marko inherited the throne as a vassal of the Ottoman sultan". This statement not only lacks confirmation in the original material but, based on available data, it is believed to have occurred much later (Petrovski 2014, 287–303). Even this small detail indicates the importance of being extremely critical when using GAI, but it also highlights the level of prior knowledge the user has on the given topic. In this case, if the author

of these lines were not also a medieval historian, such a detail in analyzing the GAI's response could have been overlooked.

A particular issue arises from the "sources" Perplexity cited in all four responses to the set of questions about King Marko, which mostly consist of various popular websites, blogs, news articles, Wikipedia entries in several different languages, including Cyrillic Serbian, Latin Serbian, and even Latin Serbo-Croatian. Latin Serbian, and even Latin Serbo-Croatian. Thus, in this particular set, Perplexity relies on only one valid "source", the *Encyclopedia Britannica* (https://www.britannica.com/biography/Marko-Kraljevic), and in only one instance, an academic paper titled "Mitologizacija na primjeru povijesne ličnosti Kraljevića Marka" (Mythologisation on the example historical figures King Marko) (Zaradić 2010, 113–125). However, even this paper is not pulled from the journal's website itself, but rather from the CORE (COnnecting REpositories) repository (https://core.ac.uk/download/pdf/14433233.pdf). Additionally, as already seen in the case of Tsar Samuel, although the text Perplexity provides as a response has footnotes and a list of references, it is actually based only on a portion of the references, usually one or two, while the rest are merely listed separately.

In the case of Bing, we received fairly short answers to all four questions, but they did not contain controversial facts. Like Perplexity, Bing also uses a system of references and footnotes, following the same principle of citing only certain ones, while listing the rest as references. Also, like Perplexity, Bing's sources are of questionable origin, so its answers can only be attributed to information drawn from a "good source", mainly in this case from the Croatian Wikipedia, which, despite being questionable like any Wikipedia, contains relevant information in this case. Among Bing's other sources, we find Wikiwand.com, historija info, Bastabalkana, Blic, Mondo, and Serbo-Croatian Wikipedia, as well as bing.com.

Finally, it's interesting to note that there are nuances in the responses to questions posed in Macedonian and Serbian. When ChatGPT responds in Serbian, it consistently uses the names "Kraljević Marko" or "Marko Kraljević", adhering to

<sup>&</sup>lt;sup>16</sup> Among those are also: https://www.boske.rs/stranice/marko\_kraljevic\_i\_musa\_kesedzija.html; https://oblakbeli.com/kraljevic-marko-najvoljeniji-junak-svih-vremena; https://www.srpbratstvo.org/2013/05/17/ko-je-bio-kraljevic-marko/

https://lepotesrbije.alo.rs/zanimljivosti/vesti/37945/marko-kraljevic-najpoznatiji-srpski-junak-ili-izda-jnik-mladi-kralj-je-najveca-misterija-srpske-istorije/vest

https://mondo.rs/Info/Drustvo/a1471762/marko-kraljvic-istorija-biografija-smrt.html

tradition, regardless of the question's form, even using the term "kralj Marko" in the last three cases. However, when responding in Macedonian, it solely uses the standard Macedonian term "κραπμ Μαρκο". Also, while in the first three questions posed in Serbian, ChatGPT denies that Marko is a historical figure, in the case of responding in Macedonian, it does not deny this anywhere. Instead, it provides information about his historical reign from the start. However, in its responses in Macedonian, ChatGPT consistently claims that Marko is a king in the Serbian Empire, implying that he ruled during the Serbian Empire, which is entirely inaccurate, as the Serbian Empire practically ceased to exist the same year as the death of Emperor Uroš, in 1371. It also consistently emphasizes that the historical Marko was continuously the greatest fighter against the Ottomans, thus translating the epic image of Marko into historical reality.

In the case of Perplexity, when providing responses in Serbian and Macedonian, it not only uses entirely different sets of sources but also delivers completely different information based on them. While in the Serbian version, it provides information that Marko is a Serbian ruler, in the Macedonian version, in the third question, it states: "It is not definitively established whether King Marko is a Macedonian, Serbian, or Bulgarian ruler" ("Не е точно определено дали Крале Марко е македонски, српски или бугарски владетел"), while in the fourth question, pushed against the wall by the formulation of the question itself, it emphasizes that Marko is a Turkish vassal but a Macedonian ruler. Moreover, in the Serbian set, it only uses the formulation that the center of King Marko's state is in Prilep, while in the Macedonian version, it uses the term "Prilep Kingdom". Additionally, in the Macedonian responses, it provides insights into the usage of Marko's tradition in toponymy.

In the case of Bing, once again, we received slightly different responses, also based on different sources depending on the language and topic. Unlike the questions in Serbian where Bing provides us with more information, in Macedonian, Bing is more concise. However, in response to the trick question, it emphasizes that Marko was a Macedonian king and that he never was a Turkish vassal!

#### Conclusion

The use of Generative Artificial Intelligence and its most popular models in historical "research" has proven to be quite challenging and thus far highly de-

batable. The concerns we have had, primarily regarding the essential question of their validity, considering that they are not trained with a specific set of analytical skills characteristic of every historian-researcher, have emerged as justified. The responses we received during testing differed, as can be seen above, not only in details but more importantly in the selection of "source" material in the case of Perplexity and Bing, which provide a preview of the "sources" they base their responses on, accessed through their online data searches. In the case of ChatGPT, there is no insight into the material it bases its output responses on. Additionally, even though it may appear at first glance that Perplexity uses a lot of sources in its processing of questions, it is actually based only on a portion of the references that it cited, usually one or two, while the rest are simply listed separately. The same problem exists with Bing. It also uses a system of references and footnotes, following the same principle of citing only certain ones while listing the rest as references.

Generally speaking, experiences from applying the tested chatbot GAI models to obtain data on certain historical figures from medieval national history and sensitive issues related to them can simply be grouped as positive and negative.

The quick responses, the potential for access to vast amounts of information and texts related to history, the substantial quantity of questions that can be posed to ChatGPT 3.5 and Bing consecutively (this is not the case with Perplexity where the limit with one request/entry is five questions) are among their most prominent positive characteristics. This also contributes to an interactive approach with the user and the possibility for a certain level of discussion on historical topics, which leads to stimulating thematic thinking for the user during the communication process. Particularly interesting is the creativity of the GAIs in generating entirely new texts for each new request/entry with the same set of questions. For example, in our case from Skopje, submitting a new request (new entry) for Samuel in Perplexity resulted in completely new texts as responses, whose content was diametrically different from the previous one. The visible ref-

<sup>&</sup>lt;sup>17</sup> In this case, an offline version of ChatGPT was used, and the AI itself is tuned to provide responses based on a database it currently has access to, though it's not known what material this GAI was specifically trained on. In the case of the other two GAIs, they utilize online searching based on parameters for which we also don't know the basis. However, as we observed, there are at least two parameters that we can assume are fundamentally dependent: 1) the language of the search used by the user during the query, and 2) the amount of available information.

erences under each of the responses in Perplexity and Bing (this is not the case with ChatGPT 3.5) is a positive aspect based on which the strength of the support for the provided responses can be realistically assessed. The presence of a certain balanced approach in some of the responses, on which obviously these GAI models are trained, can also be counted among their positive characteristics.

In contrast to this, the present inconsistency in language and alphabet, even within the same responses, contradictory views within the same responses, repetition of parts of responses, insufficient understanding of questions posed by the user, are just some of the negative experiences when using the treated GAI models. Unacceptable errors and inaccuracies both from a factual and chronological aspect, lack of context, and hence the present danger of generating its own historical truth without prior thorough verification or appropriate validation due to a limited and evidently inadequate database, confusing and incomplete sentences, are also among the worrying negative experiences of using the mentioned GAI models. Referring to almost entirely irrelevant references (there are no references at all in ChatGPT 3.5) and inappropriate determinants—most often unauthorized Wikipedia and Wikiwand citations, whose validity, especially in historical matters, tends to vary according to the authors' tendencies, as is well known, articles in popular magazines, websites of civic associations, daily newspapers, blogs, YouTube channels, inappropriate articles-do not provide expert/scientific support for the texts written by the tested GAI models. Hence, the obtained responses cannot be considered relevant, sustained, and usable. There was also bias present based on the selected and used references, and the absence of any out-of-neighbourhood references was notable (except in one case with National Geographic, but it was again in Bulgarian).

Accordingly, the presence of inaccurate data and potential disinformation emerges as a particularly serious problem, which, essentially, can create more negative consequences than benefits. This particularly applies to cases when one attempts to obtain relevant and valid historical facts, concepts, and explanations related to very well-known figures from medieval history. The tests conducted for the purposes of our "research" seem to confirm this when we requested specific facts and explanations in response to the posed concrete questions, assertions, and theses. Specifically, the question of the validity of Generative AI, which is not trained as a historian, nor does it possess an incorporated analytical skill set to

adequately process the given tasks and place them in the appropriate historical context, emerged as essential.

Our general overview is that GAIs are still in a so-called "gray zone" or not completely reliable, and therefore not entirely relevant. When using them, a considerable degree of caution is required or, rather, mandatory rechecking of the given responses. Thus, although the use of AI and chatbots aims to significantly improve the search and research process for historians, these technologies should still be used with a serious critical approach due to their incomplete insight into processing specific questions and with a clear awareness of their limitations and bias in responding to assigned tasks. Therefore, our analyses have shown that given their current insufficient development, the provided responses with the assertion of a stance may generate a one-sided and even imaginary truth, as well as inaccurate data presented as facts, which could lead to deep contradictions with the views of contemporary scientific achievements on a given historical issue.

Given all of the aforementioned, it must be emphasized that in the era of GAI, especially when researching historical topics, with an emphasis on those that form the backbone of contemporary political relations, it is necessary to approach with utmost critical scrutiny during both the search and application of GAI. This same approach should be taught to future generations as well. The necessity of such a critical approach is clearly evidenced by a recent headline of an article in the prestigious Forbes, which states: "In The Age Of AI, Critical Thinking Is More Needed Than Ever" (Carucci 2024, n.p. https://www.forbes.com/sites/roncarucci/2024/02/06/inthe-age-of-ai-critical-thinking-is-more-needed-than-ever/?sh=7e37b1e11f79).

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