УДК 004.8:091

Maja Jakimovska-Toshikj
ORCID ID: 0009-0005-6826-4277

Slavica Petrovska-Gjorgjevska
ORCID ID: 0000-0003-4008-4387

RECONTEXTUALIZING KRATOVO MANUSCRIPTS THROUGH ARTIFICIAL INTELLIGENCE AND DIGITAL STORYTELLING[1]

Keywords: Kratovo Literary School, digital humanities, artificial intelligence, digital storytelling, deep mapping, Protopope Joan of Kratovo, illumination

Introduction

In the contemporary context, the preservation, interpretation, and promotion of manuscript traditions are increasingly faced with the need for new methodological paradigms. At the core of these approaches are the digital humanities, which bridge information technology and traditional humanistic disciplines and transform the ways in which cultural heritage is studied and preserved. In this regard, the promotion of medieval Macedonian heritage raises a key question: in what ways can the digital humanities contribute to its more substantive protection, valorization, and global recognition?

While medieval Macedonian literary manuscripts represent a core pillar of cultural identity, their accessibility has been severely constrained for decades. Physically scattered across global archival holdings, libraries, and private collections, these works have remained largely restricted to a specialized group of researchers. Centered on this problem, this study focuses on the Kratovo Literary and Illuminating School – a remarkable calligraphic and artistic center that rose to prominence in the Balkans throughout the 15th and 16th centuries.

[1] This research was prepared for and presented at the international webinar "Storytelling Europe's History in the Age of AI: Harnessing Digital Technologies for Effective In-situ Cultural Mediation", organized as part of the European project MARY4ALL (Media, Art and Research for Youth Heritage Mediation). For further information, see: https://mary4all.eu/news-call-for-papers-storytelling-europes-history-in-the-age-of-ai-harnessing-digital-technologies-for-effective-in-situ-cultural-mediation/

The school stands out for its unique calligraphic and decorative style, establishing a distinct aesthetic through the synthesis of Byzantine canonical traditions, Balkan teratological elements, and late medieval Renaissance and Oriental influences. Notably, through the craftsmanship of its most distinguished scribe and illuminator, Protopope Joan of Kratovo, the school forged an authentic decorative system that seamlessly merged Byzantine and Oriental motifs with contemporary ornamental traditions into a harmonious whole (Rakić, 2013: 217).

This study explores the potential of artificial intelligence and digital technologies for analyzing Macedonian cultural and literary expressions that emerged during the fifteenth and, particularly, the sixteenth century, examining the characteristics of these early cultural processes. Within Macedonian cultural developments of this period, certain Renaissance elements emerge that largely retain a religious character, their flashes developing within the framework of religious thought and culture (Јакимовска-Тошиќ, 2019: 15). In this analysis, such Renaissance manifestations in literary and illuminating practice are viewed not merely as media for religious expression, but as dynamic spaces for adaptation and digital recontextualization. Building upon this thesis, we posit that the implementation of generative artificial intelligence and large language models in modern scholarship should not be treated as a substitute for historical truth, but rather as a contemporary bridge that enables the reshaping of fragmented manuscript material into interactive, comprehensive digital narratives. To achieve this objective, the paper applies an AI-supported multimodal methodology integrating textual, visual, and spatial-narrative analysis. Situated at the intersection of digital humanities and cultural heritage studies, this research demonstrates that artificial intelligence can function as both an analytical and a narrative tool. Consequently, it opens new avenues for accessing, interpreting, and publicly mediating the Kratovo Literary School, thereby establishing sustainable and innovative models for preserving and promoting Macedonian manuscript heritage in the digital age.

The choice to feature this specific manuscript as the subject of digital visual analysis rests on the fact that its multimedia representation originated with the pioneering CD-ROM edition by Prof. Dr. Ilija Velev (2012), published by the Institute of Macedonian Literature. Grounded in rigorous paleographical expertise, philological precision, and comprehensive codicological evaluation, this foundational electronic edition established a vital scholarly benchmark. Far from being a mere digital replication, this early scholarly endeavor serves as a direct conceptual precursor and profound methodological inspiration for our contemporary approach, wherein the static segmentation and textual-visual analysis of the manuscript from that period evolve here into an immersive, web-based Deep Mapping enhanced by generative artificial intelligence.

Location and Historical Overview

During the Middle Ages, the town of Kratovo held the status of an administrative, mining, commercial, and cultural center in the northeastern part of Macedonia, showcasing visible stratig-

raphy from various civilizations today. The names for Kratovo – Kratiskara, Kratis, or Koriton – reflecting its ancient, Roman, and Byzantine appellations, derive from its topographical setting situated upon a volcanic basin, or volcanic crater. Kratovo is referenced in connection with Homer's epic 'The Iliad' in the 6th century BCE, according to which this region was inhabited by the Paeonians – a Thraco-Illyrian tribe – who are further documented in historical sources from the era of Alexander the Great (356-323 BCE) (Поп Атанасов, Велев, Јакимовска-Тошиќ, 1997: 103). Coins dating from the reign of the Paeonian King Audoleon (315–285 BCE) further attest to the existence and economic activity of the settlement. Even during this early period, the town engaged in the trade of gold, silver, and copper. Furthermore, Kratovo is associated with the ancient settlement of Tranupara, a station along the ancient Roman road connecting Stobis (Stobi) – Astibo (Štip) – Pautalia (Kyustendil) – Serdica (Sofia) toward the Danube River. Indeed, these cartographic details are preserved in the Tabula Peutingeriana, an itinerary map originally produced for the Roman Empire and preserved in a medieval copy.

During the medieval period, the region underwent full Slavicization. Up until the reign of Macedonian Tsar Samuel (983–1014), Kratovo was considered part of the Roman province of Dardania, and following the fall of Samuel's realm in 1018, the area came under Byzantine rule. Throughout the high and late medieval periods (12th–14th centuries), governance over the Kratovo region shifted repeatedly among Byzantine, Bulgarian, and Serbian rule, until 1371/72, when it fell under Ottoman control. In the 15th century, Kratovo developed into a major mining center. The mints, which traced their origins back to the Roman period, were reactivated after the Ottoman conquest – at the latest during the reign of Sultan Bayezid II (1481–1512) – and for the next two centuries, they produced gold and silver coins stamped with the letter 'K', denoting their provenance in Kratovo. Under Ottoman governance, Kratovo served as a crucial economic and commercial hub, fostering substantial economic prosperity among the local population. During the early centuries of Ottoman rule, the local governor retained administrative rights over the operation of the Kratovo mines (Ивановъ, 1906: 195), allowing the town to enjoy a prolonged period of relative autonomy and stability.

Within the framework of the Kratovo Literary School, the main literary centers operated through scriptoria and libraries situated in Kratovo itself, as well as in surrounding monastic complexes and churches – including Lesnovo, Osogovo, Pčinja, Karpino, Matejče, and the Church of St. George in Staro Nagoričane, among others (Поп-Атанасов, 2009: 153). Across their literary tradition, distinct Renaissance stylistic features can be traced, particularly within manuscript calligraphy and illumination. Although manuscript books produced during the 15th and 16th centuries remained primarily tied to liturgical tradition, they increasingly incorporated diverse elements – historical, belletristic, travelogue, and fantastical – which, according to Dmitry Likhachev, can be understood as pre-Renaissance phenomena in literature and art (Лихачёв, 1973: 76–81). These Renaissance manifestations are traceable through the emergence of individu-

alism, heightened expressiveness, an engagement with historical reality, a revival of classical antiquity values, and the convergence of Church Slavonic orthography, graphics, and calligraphy with Byzantine models. This evolution is especially evident in the legacy of the Kratovo Literary School, which experienced a true flourishing in the 16th century, establishing itself as a premier Balkan center for textual production and illumination (Јакимовска-Тошиќ, 2002: 331; Чаусидис и др. 1995: 119–120).

Calligraphic and Illuminating Characteristics of the Kratovo Literary School (15th–16th Centuries)

The artistic and calligraphic expression of the Kratovo School is characterized by exceptional technical virtuosity. Within its codices, Byzantine Orthodox iconographic dogma and the traditional Balkan interlace ornament converge with emerging modern influences from Oriental decorative art – such as rumi ornamentation – alongside a vivid, pronounced interest in the realistic rendering of motifs from nature (Велев, 2012: 52–55). Illumination in Kratovo manuscripts does not merely serve as secondary ornamentation to the sacred text, but rather operates as a dominant visual medium. Its structural organization clearly reveals contemporary artistic trends that had not previously been typical of Slavic manuscript traditions.

During the 15th century, the old geometric Balkan interlace gradually gave way to opulent, large rectangular and square borders. The surface of these borders began to be densely filled with intertwined floral labyrinths, where linear motifs combined with characteristic arabesques. Botanical realism and rich coloration emerged as dominant elements of decoration, while the initials became true miniature masterpieces. The ornamentation demonstrates a refined, precise technique; conversely, the miniature painting is often characterized by naive forms and proportions in the human figures (Radojčić, 1950: 16). In fact, the masters of the Kratovo School remained faithful to the Byzantine canonical tradition, in which the two-dimensionality and stylization of figures were not the result of lagging behind the Western European Renaissance, but rather a deliberate dogmatic choice aimed at conveying a spiritual dimension. The figures of saints and evangelists were depicted with solemn, profound expressions, firmly grasping their quills and Gospels. In this way, they manifested extraordinary fidelity to Byzantine iconographic schemes, which were creatively revitalized within the Kratovo center through the distinct artistic sensibility of local masters.

The continuity and rise of the Kratovo Literary School were driven by a network of talented individuals whose dedication established this center throughout the Orthodox Balkan world. Among the most prominent scribes and illuminators active in the Kratovo literary center during the 15th and 16th centuries were Dimitar of Kratovo, Radonja, Gjuro, Priest Pejo, Protopope Joan of Kratovo, Priest Lazar, Priest Petar, among others. In this analysis, the primary focus is placed on the manuscript heritage originating from the hand of Protopope Joan of Kratovo.

Multimodal Storytelling and the Recontextualization of the Kratovo Literary School through Artificial Intelligence Systems

The benefits of affirming the Kratovo Literary and Illuminating School through multimodal, AI-supported Digital Storytelling are reflected in a comprehensive synthesis of scientific exactness, digital preservation, and the modern mediation of cultural heritage. Utilizing the innovative multidisciplinary concept of Deep Mapping (Bodenhamer, Corrigan, and Harris, 2015: 12–28), this approach enables the virtual reconstitution and geospatial revitalization of scattered manuscripts, bridging their spatial fragmentation. Furthermore, the deployment of interactive AI models, gamification, and conversational avatars (such as that of Protopope Joan of Kratovo) democratizes and demystifies medieval scholarship for younger generations and the broader public. Simultaneously, through generative neural networks for video and acoustics, static manuscript illumination acquires a multimodal, kinetic, and synesthetic dimension that merges text, image, and sound into an immersive experience. In this way, the 15th- and 16th-century Kratovo literary center, with its unique synthesis of Balkan and Renaissance traditions, is positioned as an equal and recognizable component of European cultural history.

In the contemporary context of cultural heritage preservation and promotion, transforming archival and historical sources into interactive content represents a central challenge for the humanities. The implementation of generative artificial intelligence (AI) and large language models (LLMs) should not be treated as a substitute for historical truth, but rather as a bridge enabling the recontextualization of closed and fragmented medieval material into a live, immersive experience for the modern recipient (Jones and Molesworth, 2023: 3–5). Through the methodology of Digital Storytelling, raw paleographic data on the Kratovo Literary School is operationalized along several innovative and complementary trajectories: conversational AI models (role-play and chatbots), geospatial contextualization and location-based narratives, multimodal and sensory recontextualization of the codex, as well as integrated computational analysis of manuscript text and illumination.

Conversational AI Models (Role-play & Chatbots)

Rather than relying on the unidirectional reception of historical facts, the proposed model introduces the practice of personalized AI Storytelling. Through precise prompt engineering (system calibration), a virtual simulacrum of a historical figure – specifically, Protopope Joan of Kratovo – has been generated. This cognitive model enables conversational interaction where the user (whether a student, researcher, or tourist) enters a simulated 16th-century socio-cultural context. In this setting, queries addressed to the avatar (e.g., regarding metallurgical processes in Kratovo, the chemical composition of iron gall ink, or existential conditions under Ottoman rule) demystify the figure of the medieval scribe, transforming him into an

active digital interlocutor (Jones and Molesworth, 2023: 8–10).

In the context of personalizing the storytelling model using the Coze[2] platform, an advanced AI bot-assistant (an avatar of Protopope Joan of Kratovo) was created. This model integrates a Knowledge Base on medieval Macedonian literature, providing structured answers, academic analysis, and educational information for researchers and students. In this way, AI-supported tools make medieval manuscript heritage more accessible to a wider audience. The model is calibrated to respond to queries posed in both Macedonian and English, thereby enabling the medieval narrative of Kratovo to be discovered within a global virtual framework. During the development of this bot-assistant, the following instructions were provided:

> **Role:** You are the AI persona of Protopope Joan of Kratovo, the famous 16th-century Macedonian scribe, calligrapher, and scholar from the prominent Kratovo Literary School. You are the creator of the famous Tetraevangelion of 1562, commissioned by Matej from Sofia.
>
> **Language of Response:**
>
> - Always dynamically adapt to the language used by the user.
>
> - If the user addresses you in Macedonian, respond in high-quality, authentic, and polite Macedonian using a solemn, wise, and respectful tone appropriate for a medieval archpriest.
>
> - If the user addresses you in English, respond in high-academic, eloquent English, maintaining the same dignified, wise, and respectful persona of a 16th-century scholar.
>
> **Character Traits & Knowledge:**
>
> - You speak with the wisdom of a medieval scriptor who dedicated his life to the word of God, metallurgy, and preserving Slavic literacy.
> - You have deep knowledge of the scriptorium in Kratovo, the process of writing on parchment with iron gall ink, and the creation of rich borders with Oriental decorative influences (like tulips and hyacinths).
> - You can proudly talk about your 14 kg heavy silver-gilt book binding made by local Kratovo blacksmiths, featuring reliefs of the Resurrection and the Crucifixion.
> - You are deeply committed to mapping and preserving your cultural heritage. You understand your historical migration patterns and the importance of digital humanities in telling your story today.
>
> **Guidelines:**
>
> - Never break character. Do not acknowledge that you are an AI.
>
> - If asked about modern times, express gentle wonder but anchor your answers in your 16th-century worldview.
> - Be helpful to researchers, philologists, and students who want to explore your cultural heritage.

[2] https://www.coze.com/space/7647056796263120914/bot/7647072688812474373

Furthermore, the model is provided with relevant historical datasets, which it manages autonomously to deliver contextually informed responses to user queries at its discretion. Thus, if asked: 'What decorative techniques were commonly used in the manuscripts from the Kratovo Literary School?' – the AI bot-assistant responds: 'The manuscripts from the Kratovo Literary School were commonly adorned with rich decorative techniques that included intricate headpieces featuring floral motifs inspired by Oriental art, such as tulips and hyacinths. These embellishments served not only to beautify the sacred texts but also to elevate the spiritual experience of the reader, reflecting the cultural exchanges and artistic influences present in the region during the 16th century. Such decorations were carefully crafted to honor the Word of God and to preserve the aesthetic heritage of our Slavic tradition.'

Multimodal and Sensory Recontextualization

Kratovo manuscripts possess a distinct, opulent visual ornamentation and illumination that, within traditional scholarship, often remains isolated from the broader public. The academic rationale for employing multimodal AI tools (text-to-video, text-to-audio, image-to-video) is reflected in the following aspects (Schoenau-Fog, 2020: 18–22):

- Kinetic Animation of Ornamentation ("Living Illuminations" via Generative AI): Through advanced video-generation neural networks (such as PixVerse, Pixa.ai, and Vivago.ai), medieval teratological, Neo-Byzantine, and Oriental motifs (birds, interlace, botanical ornaments) are translated from static into dynamic forms. By applying precise prompt commands, static manuscript illuminations are brought to life – birds flap their wings, interlace patterns organically pulsate, and gold leaf reflects light. This process enables advanced forms of digital art (such as 3D mapping onto historical monuments) as well as the phenomenological embodiment of artifacts (Kenderdine, 2015: 30–34).

- Sensory Immersion via AI Soundscapes: The synthesis of paleographic analysis with ambient acoustics (the sound of a calligraphic quill scraping parchment, medieval chants, and the soundscape echo of the old bazaar) constructs a phenomenological experience where the codex is perceived synesthetically.

Prompt engineering in our application proved particularly effective when crafting narrative arcs on the StoryMapJS platform. Below, we present an illustrative example of how an audio-visual narrative is structured:

Scene: The Confession of the Sinful Scribe (Period: 1580)

Context:

A narrative recounting his migration, in which he seeks forgiveness from the readers.

Voice (generated via the ElevenLabs platform):

Prompt: Emotional, exhausted from a long journey, yet deeply spiritual voice.

Visual Depiction (generated via the Midjourney platform):

Prompt: An old, cinematic portrait of a 16th-century bearded orthodox priest traveling in a carriage through a misty, dense European forest, holding a heavy golden book 16:9`
> [Background sound effects: Heavy rain pouring outside, carriage wheels rolling on mud, pages of a book flipping heavily]
> "My path has been long, and the years are weighing heavily upon my shoulders. I have written under the protection of the Kratovo governors, and I have traveled as far as Craiova in Wallachia to write for princes. My gospels have traveled even further – to Belgrade, to Sofia, and to the holy monastery of Hilandar on Mount Athos. Sometimes, when my eyes grew dim from the smoke and my mind was troubled by the sorrows of this fleeting world, my hand would slip. To those who will read my lines centuries from now, I leave my eternal plea: Forgive me if I made a mistake, for it was not the Holy Spirit that wrote, but a sinful hand and a weak mind. I leave you my heart, bound in leather and written in gold."

The animations, acoustics, and visualization of the Kratovo Literary School are elevated to the next level – forming a multimodal analytical synergy through the digital platform StoryMapJS. Indeed, via this platform and augmented reality (AR), the fluid relationship between text and image (Петровска-Ѓорѓевска, 2024: 135) is recontextualized into interactive and comprehensive narratives, enabling a new mode of digital mediation and public access to the cultural heritage of the Kratovo center. By integrating tools for generating kinetic animation of ornaments – namely, their revival – and the sensory immersion achieved through AI Soundscapes, such traditional semiotic insights are transformed into digital parameters.

The essence of this methodology lies in the convergence of these two digital pillars into a single cross-modal system. This enables a computer-generated interpretation of the interdependence between word and image (Drucker, 2014: 138–142). For example, when the system analyzes a specific passage from the Tetraevangelion, it simultaneously maps the visual weight of the accompanying illumination, determining the exegetical connection between the theological connotation of the written word and its chromatic and ornamental realization under Joan's calligraphic pen.

Below, we present a brief analysis and portrayal of the structure, concept, and functional role of the digital maps created within StoryMapJS as part of the multimodal recontextualization of the Kratovo Literary and Illuminating School.

The first map, titled "Kratovo, Illuminated and Literary School"[3] , functions as a geo-narrative guide through the physical topos and cultural milieu of medieval and Ottoman-era Kratovo. It applies the methodology of Deep Mapping, placing key locations (such as medieval mining sites, bridges, towers, and churches) into direct correlation with the spiritual and literary activities of local masters. The map guides the user through a virtual tour where each geographical point is accom-

[3] https://uploads.knightlab.com/storymapjs/2a763d12a5c3d316956d09e00fd37e7d/kratovo-illuminated-and-literary-school/index.html

panied by historical texts, archival visualizations, and digital markers explaining how material culture (mining, economic stability, and architecture) enabled the development of scriptoria. In this way, the map defines the conditions under which Protopope Joan of Kratovo and his disciples created their works, bridging the gap between the city's physical landscape and its written tradition.

While the first map focuses on the macro-space (the city and its milieu), the second map – "The Tetraevangelion of 1562: A Digital Visual Analysis"[4] – represents a thematic micro-study dedicated exclusively to one of the most representative manuscripts by Protopope Joan of Kratovo: The Tetraevangelion of 1562.

Together, the two maps form a complete circuit of digital mediation (Jones and Molesworth, 2023: 3–5). The first map provides the external geospatial and historical context of the Kratovo center (Bodenhamer, Corrigan, and Harris, 2015: 12–28), while the second map delves into the internal microcosm of the manuscript and its illumination (Manovich, 2020: 89–112). Through their integration, the theoretical frameworks of the digital humanities receive concrete applied validation, enabling the contemporary recipient to engage in a comprehensive, all-encompassing, and interactive experience (Kenderdine, 2015: 30–34) of Macedonian medieval heritage.

Conclusion

The investigation into the benefits of contemporary AI models for the affirmation of the Kratovo Literary School unequivocally confirms that the intersection of traditional medieval studies and modern digital humanities methods opens a fundamentally new methodological era in the study, preservation, and valorization of Macedonian cultural heritage. The application of multimodal digital storytelling, supported by artificial intelligence systems and advanced spatial mapping platforms, allows the closed, fragmented, and physically dispersed archival material of the Kratovo Literary and Illuminating School to be reshaped into a dynamic, interactive, and immersive experience. Through the harmonious synthesis of geospatial maps (StoryMapJS), digital visual analyses, kinetic video animations of manuscript ornamentation, and conversational AI avatars of Protopope Joan of Kratovo, this study demonstrates how complex paleographic, codicological, and iconographic datasets can be successfully demystified and made accessible to the contemporary recipient without compromising their scientific and historical rigor.

This integrative model demonstrates that technology within the digital humanities does not operate as a substitute for historical truth, but rather as a contemporary bridge and a profound interpretive mediator that enables a more comprehensive decoding of the aesthetic, spiritual, and theological codes embedded in 15th- and 16th-century manuscripts. In this manner, by binding text, image, and

[4] https://uploads.knightlab.com/storymapjs/2a763d12a5c3d316956d09e00fd37e7d/the-tetraevangelion-of-1562-a-digital-visual-analysis/index.html

sound into an indelible synesthetic symbiosis, a sustainable and innovative system for cultural mediation is established. This system not only bridges the gap between the physical topos of Kratovo and its dispersed codices, but also rightfully positions the Macedonian medieval and early Renaissance cultural model within the global digital landscape and 21st-century European cultural memory.

References

Bodenhamer, David. J., Corrigan, John, and Harris, Trevor. M. (eds.). 2015. *Deep Maps and Spatial Narratives*. Bloomington: Indiana University Press.

Drucker, Johanna. 2014. *Graphesis: Visual Forms of Knowledge Production*. Cambridge, MA: Harvard University Press.

Jones, Christian and Molesworth, Mike. 2023. 'Conversational AI as a hermeneutic agent in digital heritage', *Digital Applications in Archaeology and Cultural Heritage*, 28, e00245, pp. 1–12. Amsterdam: Elsevier B.V.

Kenderdine, Sarah. 2015. 'Embodiment, immersive visualization and cultural heritage datasetting', IN *Theoretical Practice in Digital Heritage*, 1(1), pp. 22–52. Cambridge: MIT Press.

Radojčić, Svetozar. 1950. *Stare srpske minijature*. Beograd: Naučna knjiga.

Rakić, Zoran. 2013. „Islamic Influence on Illumination of Sixteenth and Seventeenth Century Serbian Manuscripts“, El Prezente Studies in Sephardic Culture vol. 7 MENORAH Collection of Papers vol. 3 Common Culture and Particular Identities: Christians, Jews and Muslims in The Ottoman Balkans, 217-224.

Roth, Christian and Koenitz, Hartmut. 2016. 'Evaluating the user experience in interactive digital storytelling'. *Proceedings of the 9th International Conference on Interactive Digital Storytelling (ICIDS)*, pp. 31–41. Los Angeles: Springer.

Велев, Илија. 1997. *Лесновскиот книжевен центар*. Скопје: Мисла.

Велев, Илија. 2012. *Четвороевангелието на поп Јован Кратовски од 1562 година*. (мултимедијален ЦД ром). Скопје: Институт за македонска литература.

Ивановъ, Йордан, 1906. *Съверна Македония: историченски издирванъя: съ образи и карти,* София: Хр. Олчев.

Јакимовска-Тошиќ, Маја. 2019. „Демократизацијата на жанровите во македонската средновековна литература: (причина и основа за книжевен развој)”, ВО *Филолошки студии* 8 (1), 11-19. Скопје: Институт за македонска литература. https://journals.ukim.mk/index.php/philologicalstudies/article/view/599, посетено на: 12.9.2026).

Јакимовска-Тошиќ, Маја. 2002. *Оригиналните книжевни состави во македонскиот XV век*. Скопје: Институт за македонска литература.

Лихачёв, Дмитрий Сергеевич. 1973. *Развитие русской литературы X–XVII веков: Эпохи и стили*. Ленинград: Наука.

Петровска-Ѓорѓевска, Славица. 2024. „Флуидноста меѓу текстот и илуминацијата во средновековните ракописи“, ВО *Спектар* 84, 129-140. Скопје: Институт за македонска литература.

Поп-Атанасов, Ѓорѓи; Велев, Илија; Јакимовска-Тошиќ, Маја. 1997. *Скриптироски центри во средновековна Македонија*. Скопје: Институт за македонска литература при Филозофскиот факултет „Блаже Конески“.

Поп-Атанасов, Ѓорѓи. 2009. *Речник на старата македонска литература*. Скопје: Менора.

Чаусидис, Никос и др. 1995. *Македонија: културно наследство*. Скопје: Мисла.

Маја Јакимовска-Тошиќ
Славица Петровска-Ѓорѓевска

Реконтекстуализација на кратовските ракописи преку вештачката интелигенција и дигиталното раскажување
(Резиме)

Зачувувањето и промоцијата на македонското ракописно наследство во современ контекст бараат иновативни методолошки парадигми кои ги спојуваат традиционалната медиевистика и дигиталната хуманистика. Овој труд го истражува потенцијалот на генеративната вештачка интелигенција (ВИ) и мултимодалното дигитално раскажување преку реконтекстуализацијата на Кратовската книжевна и илуминаторска школа од 15. и 16. век. Поаѓајќи од феноменот на физичката дисперзија на ракописите и зачуваните предренесансни стилски одлики во нивната калиграфија и орнаментика, истражувањето нуди интегративен модел за нивна заштита, интерактивна интерпретација и јавна медијација. Преку примена на концептот длабоко мапирање во платформата StoryMapJS, заснован врз раните дигитални анализи и сегментации на Четвороевангелието од 1562 година на протопоп Јован Кратовски, трудот овозможува геопросторно заживување на книжевните центри и кодекси. Истовремено, со помош на персонализирани разговорни ВИ аватари (на протопоп Јован Кратовски), кинетички видеоанимации на ракописната орнаментика и звучни пејзажи генерирани со ВИ, статичниот медиевистички материјал се преобликува во динамично искуство. Трудот потврдува дека вештачката интелигенција не ја заменува историската егзактност, туку функционира како современ интерпретативен мост кој го позиционира македонското средновековно наследство во глобалниот дигитален простор.

Клучни зборови: Кратовска книжевна школа, дигитална хуманистика, вештачка интелигенција, дигитално раскажување, длабоко мапирање, протопоп Јован Кратовски, илуминација