

THE ROLE OF ARTIFICIAL INTELLIGENCE IN SHAPING THE FUTURE OF LINGUISTIC RESEARCH

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Abstract. The thesis examines AI as both object and instrument of linguistic research. Rooted in a decades-long link with computational linguistics, AI now reshapes language analysis via NLP, large language models, corpus technologies and machine translation. The paper reviews bibliometric evidence of rapid growth in linguistics–AI scholarship post-ChatGPT and outlines likely future directions, including machine translation, semantic modeling and text generation. It addresses challenges of low-resource languages, limited model interpretability, and risks to linguistic depth, concluding that AI will increasingly serve as a methodological resource guided by linguistic theory.

Keywords: artificial intelligence, linguistics, computational linguistics, natural language processing, large language models, corpus linguistics.

Artificial intelligence (AI) and linguistics have been intertwined since the earliest days of computing. The attempt to build machines capable of processing human language gave rise, as early as the 1940s–1950s, to computational linguistics

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(CL) as a distinct field, and the relationship between the two disciplines has only deepened since then [3]. Today, however, the scale and speed of this convergence are unprecedented: natural language processing (NLP), large language models (LLMs) such as ChatGPT, and AI-powered corpus technologies are transforming not only how language is used but also how it can be studied. This raises an urgent question for philology as a science: what role will artificial intelligence play in the linguistic research of the future, and how should the discipline respond to the opportunities and risks this convergence brings.

The purpose of this study is to characterize the main directions in which artificial intelligence is reshaping linguistic research, to review the empirical evidence on the scale and dynamics of this process, and to outline the principal challenges and prospects that future linguistic scholarship will need to address.

AI as both object and instrument of linguistic inquiry. Artificial intelligence occupies a dual position in relation to linguistics. On the one hand, it is an object of study: AI-generated texts, chatbot dialogue, and machine-produced metaphor and creativity raise new questions about authorship, meaning and linguistic norms that linguists are only beginning to address [1, p. 53]. On the other hand, AI is an increasingly indispensable instrument of linguistic research, providing NLP techniques such as tokenization, part-of-speech tagging, named-entity recognition, and machine translation that allow scholars to analyze text and speech at a scale and speed unattainable by manual methods [2, p. 406]. This dual nature — AI as both subject matter and tool — is likely to define the methodology of philological research for the coming decade.

Scale and dynamics of the linguistics–AI convergence. Scientometric evidence confirms that this convergence has accelerated dramatically. A fifty-one-year analysis of linguistics-and-AI publications (1974–2024) shows that annual output, which barely exceeded a hundred articles per year before 2017, rose to 1478 articles in 2023 alone, with "Using ChatGPT" emerging as the single largest research trend, alongside long-standing themes such as natural language processing, semantics

and corpus linguistics [3]. A complementary bibliometric review of the corpus-linguistics–AI interface for 2020–2025 similarly documents a sharp post-2022 surge and a decisive thematic shift from earlier data-mining approaches toward transformer-based and large-language-model research, while showing that classical descriptors such as computational linguistics and semantics remain highly central rather than being displaced by AI-specific terminology [5]. This suggests that future linguistic research will not simply be absorbed into computer science but will continue to require distinctly linguistic expertise to guide and interpret AI-driven analysis.

Applied and Ukrainian perspectives. Within applied linguistics, AI tools are already reshaping everyday research practice: neural machine translation, automated syntactic and semantic analysis, sentiment analysis of social-media and media texts, automatic text generation, and AI-assisted proofreading tools such as Grammarly are becoming standard components of the linguist's toolkit, particularly in lexicography and corpus-based research [1, p. 58]. At the same time, Ukrainian scholars emphasize that AI is not only a research tool but also an object requiring cautious linguistic scrutiny: AI-generated language, including machine-produced metaphor and figurative expression, poses new challenges for textual analysis and calls for the development of specific methodologies capable of distinguishing AI-authored from human-authored discourse [1, p. 57]. This dual concern — AI as an instrument to be used and a phenomenon to be studied — is expected to remain a defining feature of Ukrainian linguistic scholarship in the coming years.

Challenges and prospects. Several challenges will shape the trajectory of linguistics–AI research going forward. First, large language models function largely as "black boxes," and their limited interpretability complicates the verification of any linguistic claims derived from their behavior [3]. Second, the risk that data-driven scaling could displace linguistic theory in favor of sheer computational power has been explicitly identified as a concern, though current evidence suggests a hybrid rather than a displacing trend, with linguistic and computational descriptors

continuing to co-occur and jointly anchor the field [5]. Third, geographic and resource disparities mean that low-resource and under-represented languages, a category that includes many regional and minority languages, still receive disproportionately little attention from AI-driven linguistic research, underscoring the importance of developing dedicated language resources and models for such languages [4]. Addressing these challenges will require linguists to take an active role in shaping AI research agendas rather than simply adopting AI tools developed for other purposes.

Conclusions. Artificial intelligence has become, and will increasingly remain, both an object and an instrument of linguistic research. Scientometric and bibliometric evidence confirms that the linguistics–AI convergence is accelerating rapidly, driven by natural language processing, large language models and AI-enhanced corpus technologies, with machine translation standing out as a particularly active domain. At the same time, this convergence is not a wholesale takeover of linguistics by computer science: classical linguistic constructs persist and continue to organize the field, even as AI terminology becomes dominant in technical discourse. The future of linguistic research will therefore depend on maintaining this balance — using AI to expand the scale and precision of linguistic analysis while ensuring that linguistic theory continues to guide the interpretation of AI-generated data, the design of language models for under-resourced languages, and the critical evaluation of AI as a new and rapidly evolving object of linguistic study.

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