Special Issue

Understanding Transformers and Large Language Models (LLMs) with Natural Language Processing (NLP)

Message from the Guest Editors

Dear Colleagues, Large Language Models (LLMs) and transformers have transformed NLP, yet their reasoning and divergence from human cognition remain opaque. This Special Issue, edited by Prof. Massimo Stella and Dr. Alexis Carrillo Ramirez, invites innovative research using NLP to better understand LLMs. We welcome contributions on topics such as: designing linguistic or psycholinguistic prompts to reveal latent representations; comparing transformer layer analyses with human behavioral or neural data; and tracing how training, fine-tuning, or in-context learning shape predictions, biases, or theory of mind. Interdisciplinary work combining NLP, cognitive science, network science, and ethics is encouraged to explore both potential and limits of scaling laws. Our aim is to develop principled methods that turn black-box models into transparent, responsible AI systems. Submissions on reproducibility and open-source tools for community validation are especially welcome.

Guest Editors

Prof. Dr. Massimo Stella

CogNosco Lab, Department of Psychology and Cognitive Science, University of Trento, Trento, Italy

Dr. Alexis Carrillo Ramirez

CogNosco Lab, Department of Psychology and Cognitive Science, University of Trento, Trento, Italy

Deadline for manuscript submissions

18 March 2026

AI

mdpi.com/journal/
ai

About the Journal

Message from the Editor-in-Chief

Editor-in-Chief

Prof. Dr. Kenji Suzuki

Biomedical Artificial Intelligence Research Unit (BMAI), Institute of
Integrated Research, Institute of Science Tokyo, Yokohama 226-8501,
Japan

Author Benefits

Open Access:
free for readers, with article processing charges (APC) paid
by authors or their institutions.

High Visibility:
indexed within ESCI (Web of Science), Scopus, EBSCO,
and other databases.

Journal Rank:
JCR - Q1 (Computer Science, Interdisciplinary Applications)
/ CiteScore - Q2 (Artificial Intelligence)

MDPI