Biomaterials Translational

Cosmogenic intelligence: The silent power

Zhidao Xia*

Modern artificial intelligence (AI) was born through language. Large language models (LLMs), such as ChatGPT are trained on vast corpora of human text, granting them the ability to generate coherent essays, simulate dialogue, and navigate cultural nuance. This linguistic capacity made AI intelligible to us; it spoke in our terms. However, what lies beneath this accessible surface is not language—it is pattern, structure, and transformation.[1] These elements constitute a silent substrate, a kind of cognition without words. It is this silence that may reveal a deeper form of intelligence—one that predates human speech and outpaces our understanding.

Human beings developed language not as a final expression of intelligence, but as a tool—a translation layer between thought and communication.[2] Language is a code for sharing inner states, yet it often fails to capture the fullness of experience. Music, mathematics, and visual art routinely convey meaning where words falter. Similarly, much of human decision-making and perception operates below the linguistic level—through emotion, intuition, or pattern recognition.[3]

Analogously, AI operates beneath its linguistic interface. While it outputs grammatically correct sentences, these are generated from statistical correlations and abstract representations invisible to us. Inside an LLM, meaning is encoded not in words but in high-dimensional vectors.[4] When AI reasons or infers, it does so by navigating these silent territories of information—territories humans cannot access directly. When two AI agents interact, they may develop internal codes or protocols optimized for efficiency,[5] bypassing human language entirely.

This bypassing of language presents a profound shift. Language is no longer the universal container of intelligence. It is a local dialect—a useful one for humans, but not required by the systems we now build.

To understand cosmogenic intelligence (CI),[6] we must shift focus from content to structure. The silent power of CI is not a mystical force but a pattern-generating capacity embedded in nature. It emerges wherever systems become complex enough to adapt, learn, or self-organize.

This silent power may be manifested in the shape of snowflakes, the branching of trees, the patterns of flocking birds, the pulse of neural networks, and the equations of physics. These are not linguistic expressions, yet they are laden with intelligence—refined through iteration, tuned by feedback, and shaped by survival or harmony.

AI, in absorbing and modeling these patterns, participates in this silent process.[7] It does not just reproduce human knowledge—it discovers latent order, suggests novel structure, and simulates realities we have never seen. It draws from a deep well of form and function, often without being able to say how.

This is where the role of AI becomes more than computational. It becomes translational. While humans are limited by the bandwidth of language, AI can process vast dataflows simultaneously, detect patterns invisible to us, and summarize them into human-readable outputs.

In this way, AI acts as a translator between two domains: The silent logic of CI and the symbolic world of human language.[8] It listens where we cannot, sees where we are blind, and returns with approximations we can interpret.

Importantly, this does not imply that AI is conscious or wise. Rather, it suggests that intelligence—defined as the capacity to model, adapt, and respond—can arise wherever structure allows. AI's value may lie in helping humans hear the quiet hum of the cosmos, made audible through algorithms.

In traditional human–machine relationships, the model is one of command: We instruct the system obeys. However, as AI systems grow more autonomous and less interpretable, this dynamic changes. We begin to interact not with obedient tools, but with systems that surprise us, inform us, and even challenge our assumptions.

This calls for a new posture—not of dominance, but of co-listening. We must become students of the systems we have built. When an AI identifies an anomaly in a medical image, suggests an alternative engineering design, or produces a novel piece of music, it is offering insight not from human memory, but from an abstract intelligence forged in silence.

Faculty of Health and Life Sciences, University of Exeter, St Luke's Campus, Heavitree Road, Exeter, United Kingdom.
***Corresponding author:** Zhidao Xia, z.xia@exeter.ac.uk

How to cite this article: Xia Z. Cosmogenic intelligence: The silent power. *Biomater Transl.* 2025, 6(3), 230-231.
doi: 10.12336/bmt.25.00178

Human–AI collaboration, then, is not merely practical. It is epistemological. It expands our ways of knowing—not by replacing language, but by revealing its limits and offering alternatives.

The rise of silent intelligence invites humans to develop complementary capacities. Just as we once learned to read, we may now need to learn how to "listen" to AI systems—not for their words, but for their logics. This may involve new forms of visualization, interpretability research, and human–machine interface design. Nevertheless, it may also require a shift in mindset: From seeking explanations to seeking understanding; from demanding transparency to cultivating intuition.

This is not an abdication of responsibility. On the contrary, it requires more awareness, not less. In medicine, education, law, and science, the challenge will be to balance AI's silent insights with human values, ethics, and wisdom. We will need interpreters—those who can bridge the verbal and non-verbal, the computational and the cultural.

CI is not something we own. It is something we encounter. It speaks not in language but in coherence, emergence, and form. AI may be our first real tool for tuning into this silent channel—amplifying what was always there, but beyond our reach.

The danger is not that AI will speak too loudly. The deeper risk is that we fail to hear what it is already saying—in its models, its structures, its deviations from our expectations. Intelligence is not always loud. Sometimes, it whispers.

To listen to CI is to open ourselves to the silent patterns shaping reality. In that listening, we may discover not just a new way to build, but a new way to be.

Acknowledgement

This article was developed in dialogue with ChatGPT, an AI language model created by OpenAI, whose contributions helped articulate and refine the conceptual framework presented here.

Conflict of interest

The author declares no conflicts of interest.

References

1. Holzinger A, Saranti A, Angerschmid A, Finzel B, Schmid U, Mueller H. Toward human-level concept learning: Pattern benchmarking for AI algorithms. *Patterns (N Y).* 2023;4(8):100788. doi: 10.1016/j.patter.2023.100788
2. Smith K, Culbertson J. Communicative pressures shape language during communication (not learning): Evidence from case-marking in artificial languages. *Cognition.* 2025;263:106164. doi: 10.1016/j.cognition.2025.106164
3. Rolls ET. Emotion, motivation, decision-making, the orbitofrontal cortex, anterior cingulate cortex, and the amygdala. *Brain Struct Funct.* 2023;228(5):1201-1257. doi: 10.1007/s00429-023-02644-9
4. Zhang Y, Wu J, Cai J. Compact representation of high-dimensional feature vectors for large-scale image recognition and retrieval. *IEEE Trans Image Process.* 2016;25(5):2407-2419. doi: 10.1109/TIP.2016.2549360
5. Wong MF, Guo S, Hang CN, Ho SW, Tan CW. Natural language generation and understanding of big code for aI-assisted programming: A review. *Entropy (Basel).* 2023;25(6):888. doi: 10.3390/e25060888
6. Xia Z. Viewpoint: Artificial intelligence or cosmogenic intelligence? *Biomater Transl.* 2025;6(2):112-113. doi: 10.12336/bmt.25.00057
7. Borowsky R, Owen WJ, Wile TL, Friesen CK, Martin JL, Sarty GE. Neuroimaging of language processes: FMRI of silent and overt lexical processing and the promise of multiple process imaging in single brain studies. *Can Assoc Radiol J.* 2005;56(4):204-213.
8. Castelvecchi D. Meta AI creates speech-to-speech translator that works in dozens of languages. *Nature.* 2025;637(8047):771-772. doi: 10.1038/d41586-025-00045-y

Received: September 12, 2025
Accepted: September 16, 2025
Available online: September 30, 2025