

What if AI was based on the brain?

Numenta was founded with a dual mission: to reverse-engineer the neocortex and enable AI technology based on cortical theory.

Based on decades of neuroscience research, we have developed a framework for intelligence in the human brain called *The Thousand Brains Theory*. At its core are the same sensorimotor principles that underpin human intelligence and will ultimately unlock completely new capabilities not seen in AI systems today.

What is the Thousand Brains Project?

Launched in June 2024, the Thousand Brains Project is a collaborative, open-source initiative, with partial funding support by The Bill & Melinda Gates Foundation, that focuses on developing a new, **brain-based** type of **artificial intelligence**.

We are rethinking AI from the ground up with an open-source platform that will create AI that learns continuously, efficiently, and through active interaction with the world.

How can I get involved?

We have published an initial release of our open-source code base and plan to release an easy-to-use SDK to encourage people to build on our general framework for learning. We have pledged to not assert our patents related to the Thousand Brains Project.

We also actively publish our design and engineering process and regularly release our research meetings on our YouTube channel. Our goal is to foster a collaborative research community that is excited by this approach, and we welcome contributions of all sorts to the project.

How can I learn more?

Get more information to our full documentation and code and follow us on social media for more updates below.



Pioneering a New Era of Brain-Based AI

How is the **Thousand Brains Project** different?

Our software architecture design follows several core neocortical principles that we have discovered, which are vastly different from those used by today’s AI.

By building systems that use these principles, we can overcome many of the obstacles that today’s AI faces. In addition, our framework built on the Thousand Brains principles will enable applications that cannot even be attempted with today’s AI.

	Today's AI Systems Based on Deep Learning	A New AI Based on the Thousand Brains Project
Learning	Trained on large, static, labelled, datasets; new tasks require retraining	Learns continuously via active interaction with the world
Explainability	Operates as “black box”; limited transparency	Learns structured, interpretable models
Scalability	Model performance closely tied to parameter count and training data	Highly flexible; scales on demand
Multimodality	Requires separate models or modifications for different data types	Integrates and processes multi-modal data
Data Volume	Struggles with data-scarce scenarios	Excels in low-data environments
Generalization	Specialized for narrow tasks; limited cross-domain capabilities	Capable of performing a wide range of tasks across multiple domains
Intelligence	Pattern recognizer	Sensorimotor system, based on the brain

Comparison of current AI systems’ deep learning approach vs. the Thousand Brains Project’s brain-based approach to AI.

