Stanhope AI raises £2.3 million for AI inspired by neuroscience that teaches machines to make truly human-like decisions for the first time ever

- Stanhope AI's approach is based on co-founder Professor Karl Friston's neuroscientific Free Energy Principle, cited as "the most all-encompassing idea since natural selection"
- By applying this principle to AI, Stanhope AI has built algorithms for machines that, like the human brain, are always trying to guess what will happen next; learning from predicted and actual events to continuously update their "world models"
- This is a very different approach to traditional machine learning methods used for systems like Large Language Models and moves the theory from the lab to products
- The £2.3 million funding round follows early proof-of-concept studies with the Royal Navy and US Navy on drones, and is led by the UCL Technology Fund

London, 20 March 2024: Stanhope AI – the world's first company applying decades of neuroscience research to teach machines how to make human-like decisions in the real world – has successfully raised £2.3 million in seed funding led by the UCL Technology Fund. Creator Fund also participated, along with, MMC Ventures, Moonfire Ventures and Rockmount Capital and leading angel investors.

Stanhope AI was founded as a spinout from University College London, supported by UCL Business, by three of the most eminent names in neuroscience and AI research – CEO Professor Rosalyn Moran (former Deputy Director of King's Institute for Artificial Intelligence), Director Karl Friston, Professor at the UCL Queen Square Institute of Neurology and Technical Advisor Dr Biswa Sengupta (MD of AI and Cloud products at JP Morgan Chase).

By using key neuroscience principles and applying them to AI and mathematics, Stanhope AI is at the forefront of the new generation of AI technology known as "agentic" AI. The team has built algorithms that, like the human brain, are always trying to guess what will happen next; learning from any discrepancies between predicted and actual events to continuously update their "internal models of the world." Instead of training vast LLMs to make decisions based on seen data, Stanhope agentic AI's models are in charge of their own learning. They autonomously decode their environments and rebuild and refine their "world models" using real-time data, continuously fed to them via onboard sensors.

The rise of agentic AI

This approach, and Stanhope AI's technology, are based on the neuroscience principle of Active Inference – the idea that our brains, in order to minimise free energy, are constantly making predictions about incoming sensory data around us. As this data changes, our brains adapt and update our predictions in response to rebuild and refine our world view.

This is very different to the traditional machine learning methods used to train today's AI systems such as LLMs. Today's models can only operate within the realms of the training they are given, and can only make best-guess decisions based on the information they have. They can't learn on the go. They require extreme amounts of processing power and energy to train and run, as well as vast amounts of seen data.

By contrast, Stanhope AI's Active Inference models are truly autonomous. They can constantly rebuild and refine their predictions. Uncertainty is minimised by default, which removes the risk of hallucinations about what the AI *thinks is true*, and this moves Stanhope's unique models towards reasoning and human-like decision-making. What's more, by drastically reducing the size and energy required to run the models and the machines, Stanhope AI's models can operate on small devices such as drones and similar.

"The most all-encompassing idea since natural selection"

Stanhope AI's approach is possible because of its founding team's extensive research into the neuroscience principles of Active Inference, as well as free energy. Director Indeed Professor Friston, a world-renowned neuroscientist at UCL whose work has been cited twice as many times as Albert Einstein, is the inventor of the Free Energy Theory Principle.

Friston's principle theory centres on how our brains minimise surprise and uncertainty. It explains that all living things are driven to minimise free energy, and thus the energy needed to predict and perceive the world. Such is its impact, the Free Energy Theory Principle has been described as the "most all-encompassing idea since the theory of natural selection." Active Inference sits within this theory to explain the process our brains use in order to minimise this energy. This idea infuses Stanhope AI's work, led by Professor Moran, a specialist in Active Inference and its application through AI; and Dr Biswa Sengupta, whose doctoral research was in dynamical systems, optimisation and energy efficiency from the University of Cambridge.

Real-world application

In the immediate term, the technology is being tested with delivery drones and autonomous machines used by partners including Germany's Federal Agency for Disruptive Innovation and the Royal Navy. In the long term, the technology holds huge promise in the realms of manufacturing, industrial robotics and embodied AI. The investment will be used to further the company's development of its agentic AI models and the practical application of its research.

Professor Rosalyn Moran, CEO and co-founder of Stanhope AI, said: "Our mission at Stanhope AI is to bridge the gap between neuroscience and artificial intelligence, creating a new generation of AI systems that can think, adapt, and decide like humans. We believe this technology will transform the capabilities of AI and robotics and make them more impactful in real-world scenarios. We trust the math and we're delighted to have the backing of investors like UCL Technology Fund who deeply understand the science behind this technology and their support will be significant on our journey to revolutionise AI technology."

David Grimm, Partner UCL Technology Fund, said: "AI startups may be some of the hottest investments right now but few have the calibre and deep scientific and technical know-how as the Stanhope AI team. This is emblematic of their unique approach, combining neuroscience insights with advanced AI, which presents a groundbreaking opportunity to advance the field

and address some of the most challenging problems in AI today. We can't wait to see what this team achieves."

Marina Santilli, Associate Director UCL Business, said "The promise offered by Stanhope AI's approach to Artificial Intelligence is hugely exciting, providing hope for powerful whilst energy-light models. UCLB is delighted to have been able to support the formation of a company built on the decades of fundamental research at UCL led by Professor Friston, developing the Free Energy Principle."

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About Stanhope AI
Founded in 2021, Stanhope AI aims to alter the course of AI design, based on decades of neuroscience research. Founded by three of the most eminent names in neuroscience and AI research – CEO Professor Rosalyn Moran, Director Professor Karl Friston (creator of Free Energy Theory) and Technical Advisor Dr Biswa Sengupta, Stanhope AI's models continuously use real-time data to predict what will happen next and make decisions autonomously, without the need for prior training – like the brain. Backed by VCs including AlbionVC and Moonfire Ventures, the technology holds huge promise in the realms of manufacturing, and other autonomous systems.
https://www.stanhopeai.com/

About UCL Technology Fund
The UCL Technology Fund exists to help solve the world's most pressing problems: healthy planet, healthy people and healthy work. It helps UCL innovators across the Physical and Life Sciences scale globally. The Fund supports UCL in achieving the full potential of innovations that have prospects for outstanding societal and market impact, right through the development journey from initial proof of concept to practical commercial application. The Fund is managed by AlbionVC in collaboration with UCL Business. For further information please visit:
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