

NVIDIA Building UK's Most Powerful Supercomputer, Dedicated to AI Research in Healthcare

GSK, AstraZeneca, Guy's and St Thomas' NHS Foundation Trust, King's College London, Oxford Nanopore to Tap NVIDIA's New 'Cambridge-1' AI Supercomputer

GTC — NVIDIA today announced that it is building the United Kingdom's most powerful supercomputer, which it will make available to U.K. healthcare researchers using AI to solve pressing medical challenges, including those presented by COVID-19.

Expected to come online by year end, the "Cambridge-1" supercomputer will be an [NVIDIA DGX SuperPOD™](#) system capable of delivering more than 400 petaflops of AI performance and 8 petaflops of Linpack performance, which would rank it No. 29 on the latest [TOP500](#) list of the world's most powerful supercomputers. It will also rank among the world's top 3 most energy-efficient supercomputers on the current [Green500](#) list.

Among the first pharmaceutical companies to harness Cambridge-1 for research will be GSK and AstraZeneca. Additionally, researchers from Guy's and St Thomas' NHS Foundation Trust, King's College London and Oxford Nanopore Technologies plan to take advantage of the system.

"Tackling the world's most pressing challenges in healthcare requires massively powerful computing resources to harness the capabilities of AI," said Jensen Huang, founder and CEO of NVIDIA, in his [GPU Technology Conference keynote](#). "The Cambridge-1 supercomputer will serve as a hub of innovation for the U.K., and further the groundbreaking work being done by the nation's researchers in critical healthcare and drug discovery."

NVIDIA has previously announced that it intends to create an [AI Center of Excellence in Cambridge](#), featuring a new Arm-based supercomputer, which will serve as a hub of collaboration for AI researchers, scientists and startups across the U.K. As these plans develop, Cambridge-1 will become a part of that Center of Excellence, which will expand to include further supercomputers, and support more industries across the U.K.

Four Key Focus Areas

The system's mission is to support and further enable the U.K. ecosystem of healthcare and life science researchers, which has become an epicenter for transformative healthcare research and discovery. Its four key focus areas will be:

- **Joint industry research** — Solving large-scale healthcare and data-science problems which otherwise could not be tackled due to their size, resulting in improved patient outcomes, increased success rates and decreased overall healthcare costs.
- **University-granted compute time** — Access to NVIDIA GPU time will be donated as a resource to specific studies to contribute to the hunt for cures.
- **Support AI startups** — NVIDIA will provide opportunities to learn — and it will collaborate with startups to nurture the next generation and provide early access to AI tools.
- **Educate future AI practitioners** — The system will serve as a destination for world-class researchers and provide hands-on experiences to the next generation.

Cambridge-1 AI

Cambridge-1 will be the first NVIDIA supercomputer designed and built for external research access. Powered by 80 [NVIDIA DGX A100™ systems](#) connected by [NVIDIA Mellanox® InfiniBand networking](#), it will give researchers and academics the ability to tackle some of the most challenging AI training, inference and data science workloads at scale. While traditional supercomputers can take years to deploy, the modular DGX SuperPOD architecture enables the system to be installed and operational in as little as a few weeks. NVIDIA will invest around £40 million (\$51.7 million) in Cambridge-1.

NVIDIA Clara for Computational Drug Discovery

NVIDIA will help researchers take advantage of [NVIDIA Clara Discovery™](#), a state-of-the-art suite of tools optimized for NVIDIA DGX™ that brings together the power of imaging, radiology and genomics to develop AI applications for the biggest computational tasks of healthcare.

It features pre-trained AI models and application-specific frameworks to help researchers define the next generation of drug discovery processes, from finding targets to building compounds to developing responses.

Using a recent breakthrough in natural language processing, researchers can now leverage biomedical-specific language models to organize, understand and activate large datasets, research literature and sort through papers or patents on existing treatments and other important real-world data.

Supercharging Healthcare Research with UK's Leaders

Top pharmaceutical companies, tech startups and members of academia and research plan to use Cambridge-1 for solo and joint projects that expand the boundaries of science — pushing for better patient care, diagnosis and delivery of critical medicines and vaccines around the world.

Each has a vision for modern healthcare with AI driving wider leaps in existing protocols and practices:

Dr. Hal Barron, Chief Scientific Officer and President, R&D, GSK: “AI and machine learning are like a new microscope that will help scientists to see things that they couldn't see otherwise. NVIDIA's investment in computing, combined with the power of deep learning, will enable solutions to some of the life sciences industry's greatest challenges and help us continue to deliver transformational medicines and vaccines to patients. Together with GSK's new AI lab in London, I am delighted that these advanced technologies will now be available to help the U.K.'s outstanding scientists.”

James Weatherall, Ph.D., Head of Data Science and AI, AstraZeneca: “The use of big data, supercomputing and artificial intelligence have the potential to transform research and development; from target identification through clinical research and all the way to the launch of new medicines.”

Sebastien Ourselin, Head, School of Biomedical Engineering & Imaging Sciences at King's College London: “Recent advances in AI have seen increasingly powerful models being used for complex tasks such as image recognition and natural language understanding. These models have achieved previously unimaginable performance by using an unprecedented scale of computational power, amassing millions of GPU hours per model. Through this partnership, for the first time, such a scale of computational power will be available to healthcare research — it will be truly transformational for patient health and treatment pathways.”

Dr. Ian Abbs, Chief Executive and Chief Medical Officer of Guy's and St Thomas' NHS Foundation Trust: “If AI is to be deployed at scale for patient care, then accuracy, robustness and safety are of paramount importance. We need to ensure AI researchers have access to the largest and most comprehensive datasets that the NHS has to offer, our clinical expertise, and the required computational infrastructure to make sense of the data. This approach is not only necessary, but also the only ethical way to deliver AI in healthcare — more advanced AI means better care for our patients.”

Gordon Sanghera, CEO, Oxford Nanopore Technologies: “Compact AI has enabled real-time sequencing in the palm of your hand, and AI supercomputers are enabling new scientific discoveries in large-scale genomic datasets. These complementary innovations in data analysis support a wealth of impactful science in the U.K. and, critically, support our goal of bringing genomic analysis to anyone, anywhere.”

Matt Hancock, Secretary of State for Health and Social Care: “Today's announcement from NVIDIA is an exciting moment for the U.K.'s world-leading healthcare industry and a tremendous vote of confidence in the U.K. as an international centre for research, AI and innovation. Accelerating drug discovery has never been so important and it is investments like this that can make a real difference in our fight against countless diseases. I care about technology because I care about people and NVIDIA's new supercomputer will aid the U.K.'s best and brightest to undertake research that will save lives.”

About NVIDIA

NVIDIA's (NASDAQ: NVDA) invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined modern computer graphics and revolutionized parallel computing. More recently, GPU deep learning ignited modern AI — the next era of computing — with the GPU acting as the brain of computers, robots and self-driving cars that can perceive and understand the world. More information at <http://nvidianews.nvidia.com/>.

Certain statements in this press release including, but not limited to, statements as to: the benefits, performance, features, availability, and initial users of, and NVIDIA's investment in the Cambridge-1 supercomputer; tackling the world's most pressing healthcare challenges requiring massively powerful computing resources; NVIDIA's AI Center of Excellence serving as a hub of collaboration for AI researchers, scientists and startups, and its impact and key focus areas; Cambridge-1 becoming a part of the Center of Excellence; NVIDIA helping researchers take advantage of NVIDIA Clara Discovery; the benefits and impact of NVIDIA Clara Discovery; the plans of pharmaceutical companies, tech startups and members of academia and research to use Cambridge-1; AI and machine learning helping scientists to see things they couldn't see otherwise; the impact of NVIDIA's investment in computing; and the scale of computational power being transformational for patient health and treatment pathways are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company's website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law,

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