

King's College London and NVIDIA Build UK's First AI Platform for NHS Hospitals

Boosting effectiveness and data privacy, NVIDIA DGX-2 AI systems power federated learning infrastructure for local creation, adaptation and deployment of AI in medical imaging in hospitals.

Aiming to simplify and speed up complicated radiology workflows, NVIDIA and King's College London today announced they are partnering to build an AI platform that will in the near future allow specialists in the U.K.'s National Health Service (NHS) to train computers to automate the most time-consuming part of radiology interpretation.

The collaboration is part of King's London Medical Imaging & AI Centre for Value-Based Healthcare, an ongoing project intended to transform 12 clinical pathways in oncology, cardiology and neurology, as well as improve diagnoses and patient care in the NHS.

The work could lead to breakthroughs in classifying stroke and neurological impairments, determining the underlying causes of cancers and recommending the best treatments for patients.

NVIDIA DGX-2 AI Systems Power First Point-of-Care Platform

King's is implementing [NVIDIA DGX-2™ systems](#), which are 2-petaflops GPU-powered supercomputers for AI research, as part of the first phase of the project. It will also use the [NVIDIA Clara AI toolkit](#) with its own imaging technologies, for example NiftyNet, as well as those from partners such as Kheiron Medical, Mirada and Scan.

The NVIDIA Clara AI toolkit is a key part of the NVIDIA Clara developer platform, on which intelligent workflows can be built. NVIDIA Clara consists of libraries for data and image processing, AI model processing, and visualization.

Researchers and engineers from NVIDIA and King's will also join clinicians from major London hospitals onsite at King's College Hospital, Guy's and St Thomas', and South London and Maudsley. This combination of research, technology and clinicians will accelerate the discovery of data strategies, resolve targeted AI problems and speed up deployment in clinics.

Federated Learning Supports Data Privacy

For the first time in the NHS, federated learning will be applied to algorithm development, ensuring the privacy of patient data. Federated learning allows AI algorithms to be developed at multiple sites, using data from each individual hospital, without the need for data to travel outside of its own domain.

This approach is crucial for the development of AI in clinical environments, where the security and governance of data is of the highest importance. AI models will be developed in different NHS trusts across the U.K., built on data from different patient demographics and clinical attributes.

With models developed at individual NHS trusts, the data will give more accurate and representative insight into patients from that particular area. The NHS will also be able to combine these trust-specific models to build a larger, demographically richer overall model.

By bringing together a critical mass of industry and university partners, the London Medical Imaging & AI Centre for Value-Based Healthcare will allow the NHS to share and analyze data on a scale that has not previously been possible, according to Professor Sebastien Ourselin, head of the School of Biomedical Engineering & Imaging Sciences at King's College London.

"This centre marks a significant chapter in the future of AI-enabled NHS hospitals, and the infrastructure is an essential part of building new AI tools which will benefit patients and the healthcare system as a whole," said Professor Ourselin. "The NVIDIA DGX-2 AI system's large memory and massive computing power make it possible for us to tackle training of large, 3D datasets in minutes instead of days while keeping the data secure on the premises of the hospital."

Jaap Zuiderveld, vice president for EMEA at NVIDIA, said, "Together with King's College London, we're working to push the envelope in AI for healthcare. DGX-2 systems with the NVIDIA Clara platform will enable the project to scale and drive breakthroughs in radiology ultimately help improve patient outcomes within the NHS."

The collaboration between NVIDIA and King's College London is part of the UKRI program for Radiology and Pathology, an innovation fund that has supported the growing community looking to integrate AI workflows into the NHS.

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/>.

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Certain statements in this press release including, but not limited to, statements as to: NVIDIA and King's College London building the U.K.'s first AI platform for NHS hospitals; the benefits, impacts, performance and abilities of NVIDIA DGX-2, the AI systems it powers and the NVIDIA Clara AI toolkit; the AI platform allowing specialists in the NHS to train computers to automate the most time-consuming part of radiology interpretation; the benefits and impact of NVIDIA and King's College London's collaboration, including the medical breakthroughs it could facilitate, the data giving more accurate and better insight into patients, and the use of trust-specific models to build larger demographically richer overall models; King's College London's projects intention to transform clinical pathways, improve diagnoses and patient care; the collaboration joining clinicians for various hospitals and its ability to accelerate the discovery of data strategies, resolve targeted AI problems and speed up deployment in clinics; the benefits and impacts of federated learning being applied to algorithm development; the London Medical Imaging & AI Centre for Value-Based Healthcare allowing the NHS to share and analyze data on a scale that has not previously been possible, it marking a significant chapter in the future of AI-enabled NHS hospitals, and it being an essential part of building new AI tools that will benefit patients and the healthcare system as a whole; NVIDIA DGX-2 AI system making it possible to train large datasets in minutes, instead of days while keeping the data secure; and DGX-2 systems and NVIDIA Clara enabling the collaboration with King's College London to scale and drive breakthroughs in radiology and help improve patient outcomes 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, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.

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