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New Collaboration in Federated Learning Improves Treatment Outcomes

In the UK, a new collaboration leverages federated learning to speed up research and improve clinical outcomes in the treatment of cancer, heart failure, stroke, and neurodegenerative disease (ie, dementia).

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Owkin, which focuses on AI-powered solutions to advance medical research, has partnered with technology company NVIDIA and King's College London (KCL) to tap the power of machine learning for more comprehensive health data analytics.

"Together we will be enabling the formation of a decentralised dataset that will generate enormous value for research and clinical practice," said Owkin's co-founder and chief scientific officer, Gilles Wainrib. "Owkin hopes to demonstrate that a Federated Learning architecture is safer for patients, and statistically equivalent to the traditional pooled model for analysis."

It should be noted that KCL has been responsible for assembling the engineering, medical and data science talent, the high-quality patient data, and the governance framework in the AI4VBH Centre, an Innovate UK-funded research institution.

According to Wainrib, Owkin sees huge research potential to analyse the patient data in the AI4VBH Centre to identify new biomarkers, and high value subgroups for clinical trial design and diagnostics.

Under this collaboration, Owkin's Federated Learning software and NVIDIA's EGX Intelligent Edge Computing platform will be used by KCL to accelerate research and improve clinical practice across a number of therapeutic pathways, with cancer, heart failure, dementia and stroke likely areas of early focus. KCL will then have this federated dataset available to its researchers as well as a community of Life Science & Healthcare companies that are consortium members within the AI4VBH Centre.

"We are very pleased to welcome Owkin into our consortium of partners," stated Sebastien Ourselin, professor of healthcare engineering at KCL. "Owkin are thought leaders in the new field of federated learning, and will make an important contribution to the AI Centre by providing the software layer that allows models to be built, orchestrated, secured and traced as they travel between our hospital and university partners. This enables us to learn from data at scale, while preserving patient privacy."

Owkin's highly flexible blockchain-based platform will ensure that the predictive models developed from patient data are representative and unbiased because they will be trained on the widest possible population of patient data, according to Professor Ourselin, who sees this federated learning architecture "as the future of healthcare informatics."

For his part, Craig Rhodes, EMEA industry lead for artificial intelligence healthcare and life science at NVIDIA, says this med-tech collaboration is the "right solution" for KCL and many other leading research hospitals around the world.

"The collaboration with KCL, the Hospital Trusts, Owkin and NVIDIA brings together the clinical, data science and technology partners to ensure that patients can be confident in the integrity and security of their data in this new and rapidly evolving healthcare revolution," Rhodes noted.

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