Intel, Penn Medicine Federated Learning Study

Dec. 5, 2022 — Intel Labs and the Perelman School of Medicine at the University of Pennsylvania have completed a joint research study using federated learning – a distributed machine learning artificial intelligence approach – to help international healthcare and research institutions identify malignant brain tumors.

Supporting quotes:

"The development of automatic algorithms for identification of tumor boundaries in the brain will produce beneficial impact on both clinical care and research. MRI imaging has become the primary means of assessing the state of disease for primary and metastatic brain tumors and so rapid, accurate and validated methods for tumor segmentation will provide clinicians and researchers with more reliable and quantitative assessments of tumor burden and response to therapy."

Michael Vogelbaum, MD, PhD, chief of Neurosurgery, Moffitt Cancer Center

"As evident by the success of this pilot federated learning study, this initiative will greatly enhance the ability for international collaborations by providing a platform for the response assessment in neuro oncology (RANO) working groups to aggregate knowledge from multi-institutional data to tackle challenging problems and develop generalizable biomarkers for the evaluation of central nervous tumors."

Raymond Huang, MD, PhD, chief of Neuroradiology Division at the Brigham and Women's Hospital and associate professor of Radiology at Harvard Medical School

"The main motivation is that better visualization of extent of these infiltrative tumors is critical for therapeutic planning. What you cannot see is what you cannot treat."

Suyash Mohan, MD, associate professor of Radiology and Neurosurgery at Penn Medicine

"With the number of AI models cleared by the FDA for clinical use increasing rapidly, ensuring generalizability of AI models is more important than ever. Easily deployed platforms, like the FeTS platform, for federating AI methods make possible the expansion of dataset size and diversity for AI training and validation while mitigating concerns around data security."

Kendall Schmidt, PhD, senior data scientist at the American College of Radiology

About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore's Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers' greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel's innovations, go to newsroom.intel.com and intel.com.