Facebook announces fastMRI—an AI enhancement for MRI machines

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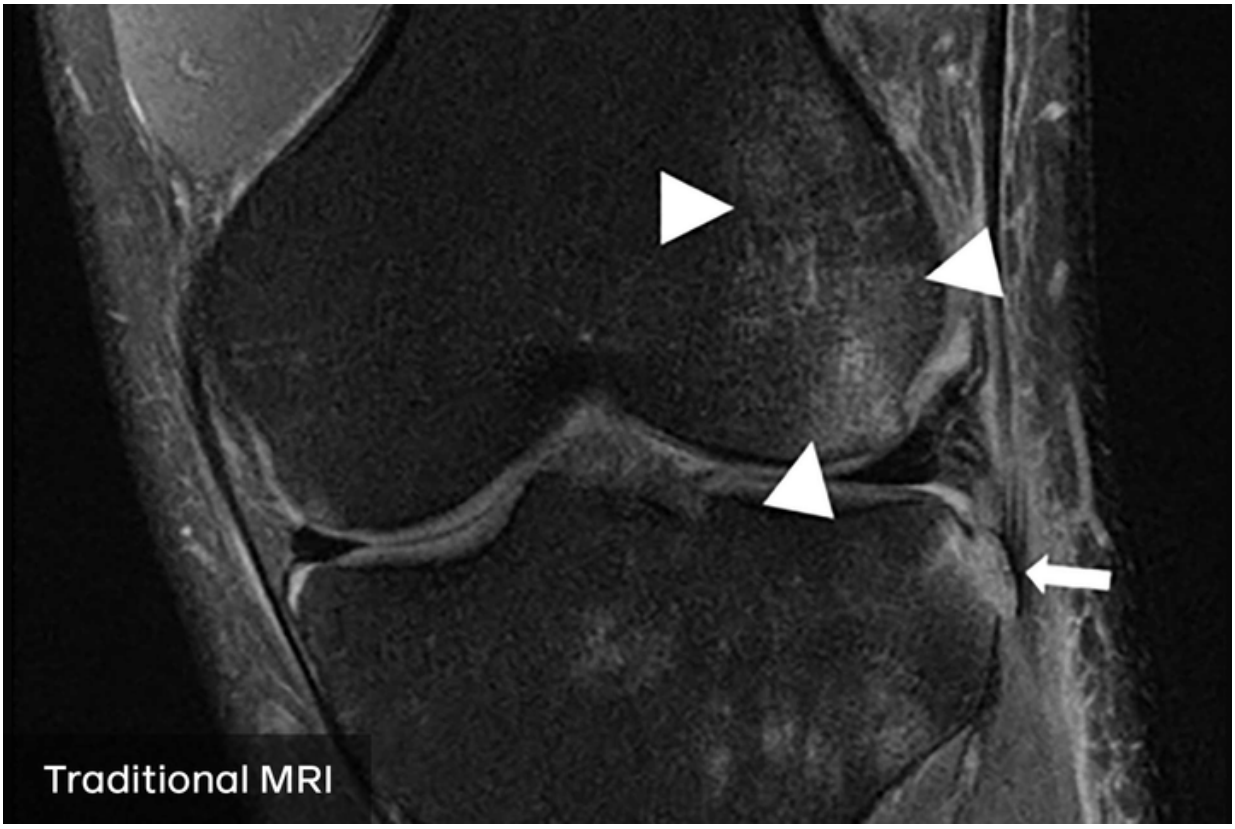

Credit: Facebook

Facebook has announced on its blog that its AI research team has been working with radiologists at NYU Langone Health to create an AI system that can speed up MRI machines. A paper written by the team

describing the new technology is to be published in the *American Journal of Roentgenology*.

MRI scans are excellent tools for doctors, allowing a noninvasive look inside a human patient's body. But they take a long time—usually an hour or more. This length of time can be difficult for young patients or those who are in pain and are asked to keep still for the entire scan. Failure to do so can result in loss of resolution. MRI scans are also notoriously disliked by patients because they involve lying in an enclosed tube and loud noise. In this new effort, the researchers have used artificial intelligence to dramatically speed up the process—Facebook claims by as much as four times.

The new system, called fastMRI, works in much the same way as other AI systems. The system is first trained on hundreds or thousands of MRI scans of human body parts to teach it what an MRI film looks like. Then, it is used with the scanning software in the MRI machine to build an MRI film: in essence, filling in information that the system predicts will eventually be in the image.

The research team has tested the system by having trained radiologists compare knee films from traditional MRI scans with those that were sped up using the fastMRI technology. Facebook claims that the radiologists could not distinguish the regular images from those that had been created using the new technology, leading them to describe the output as interchangeable. They also claim that the new technology allowed for creating MRI films in 75% less time, in about 15 minutes.

The researchers have been working on fastMRI for two years, and are now ready for other groups to test it in preparation for commercial use. And because it works with existing MRI machines and is open source, they expect radiologists to be using it within two years.

More information: Michael P. Recht et al. Using Deep Learning to Accelerate Knee MRI at 3T: Results of an Interchangeability Study, *American Journal of Roentgenology* (2020). DOI: 10.2214/AJR.20.23313

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