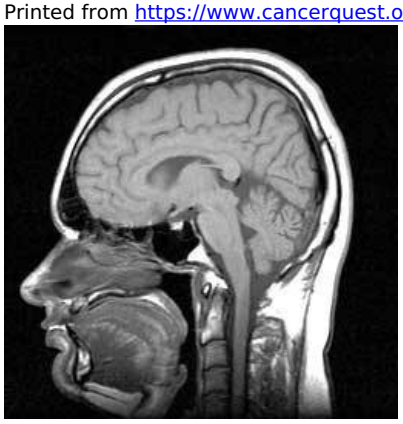
A computer program that beats physicians at brain cancer diagnoses!



When treating a brain tumor, MRI's can be tricky to read: sometimes, it is difficult to tell whether the image shows dead brain cells due to the effects of radiation, called radiation necrosis, or if a brain tumor has returned. These two situations require very different treatments. However, a program is being developed at Case Western University that will be able to differentiate between the two scenarios more accurately than most physicians.

The program was developed by combining machine learning algorithms and radiomics, or the assessment of features from medical images using computer algorithms. The scientists, engineers, and physicians trained the computer to differentiate between brain cancer and radiation necrosis. The computer is able to pick up on things on the MRI that are difficult to be seen by the human eye.

According to Pallavi Tiwari, assistant professor of biomedical engineering at Case Western Reserve and leader of the study, "What the algorithms see that the radiologists don't are the subtle differences in quantitative measurements of tumor heterogeneity and breakdown…"

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