Researchers taught a machine learning algorithm to detect early signs of Alzheimer's disease with a study showing more rapid and accurate diagnoses than doctors.

Alzheimer's is a degenerative disease that affects the brain, leading to dementia and a loss of independent living. There's no cure, but we've seen technology helping to provide care for those with Alzheimers, such as VR films that trigger happy memories. Additionally, early detection is also improving thanks to a group of scientists who created a video game to track how the brain navigates space. Now, scientists are using the power of algorithms to help with early diagnosis.

Researchers from The University of California San Francisco, among others, have developed a machine learning algorithm that studies brain scans. Previous studies suggest Alzheimer's develops due to the formation of solid plaques in the brain. These prevent neurons from working properly, causing them to die. The scientists taught the algorithm to detect signs of these plaques in pre-diagnosis patients. The patients in the scans ingested a radioactive form of glucose. Tests carried out on the PET scans hereafter, revealed an effective way of tracking this radioactive glucose. Furthermore, additional research suggests Alzheimer's develops because brains become less able to breakdown glucose. This excess glucose builds up and could cause plaques to form.

The team's study showed that their algorithm detected Alzheimer's on average six years faster than trained clinicians, and with a greater success rate. While the study was only performed on 40 patients, this suggests the algorithm can detect early signs of the disease earlier than radiologists,
who usually study PET scan results by eye. This could allow for earlier intervention and management for sufferers. The research is published in the journal *Radiology*.

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**Takeaway:**
Machine learning is a powerful tool. An algorithm is fed information, and 'learns' more about that information than humans can alone. It becomes better the more information it receives. Data sharing also has huge benefits for the industry as a whole as big data means better algorithms. How could industries other than medicine benefit from data sharing and machine learning?