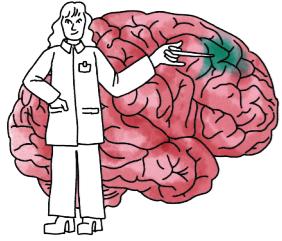


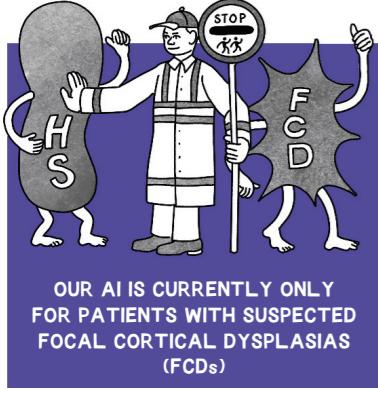
AI FOR DIAGNOSING FOCAL EPILEPSY

Why do we need AI Diagnosis in Focal Epilepsy?

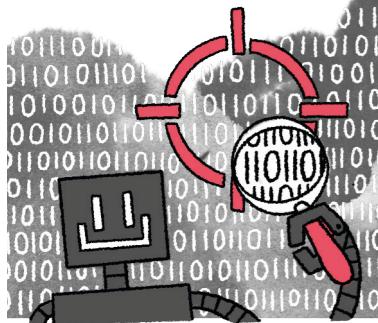
FOCAL EPILEPSY



When epilepsy seizures start on **ONE** side of the brain. There are lots of different causes - just one of these is focal cortical dysplasia (FCD)

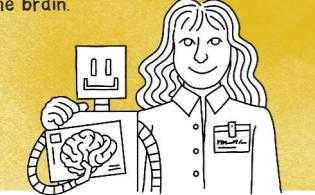


OUR AI IS CURRENTLY ONLY FOR PATIENTS WITH SUSPECTED FOCAL CORTICAL DYSPLASIAS (FCDs)



88% of the patients and parents we asked hoped that AI could provide more accurate diagnosis

77% of parents and patients we asked were worried about inaccurate predictions. The AI often finds multiple suspicious areas in the brain, which MUST be carefully reviewed by expert radiologists. Our aim is that the AI can assist radiologists to find the right area of the brain.



A real-life walkthrough

This example case is based on a real patient who took part in our study, where AI was used to assist radiologists in diagnosis.

an eight year old girl, who had been having seizures since the age of three, comes in for testing.

An MRI scan is taken, and results and a radiologist reports no abnormalities

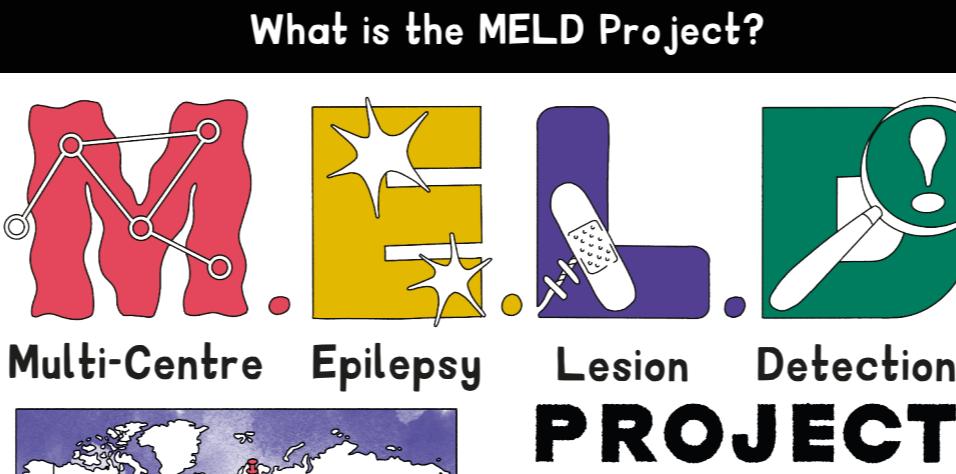
But, when run through our AI, it reports abnormalities

This result is then checked by a radiologist

The area causing seizures is confirmed, and the patient is offered SEEG

Surgery is performed

70% of patients who follow this pathway are now seizure free!



What is the MELD Project?

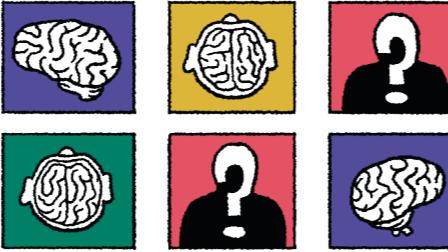


Lesion Detection PROJECT

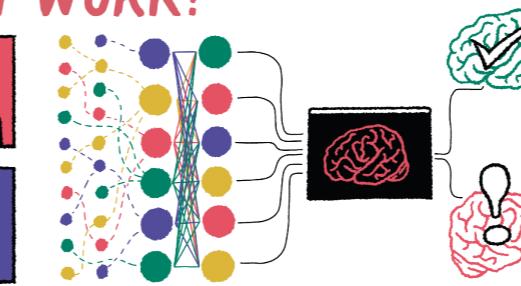
We've been working with:
22 epilepsy centres worldwide
1000 participants
100 Epilepsy clinicians and researchers

We are using MRI images, clinical information and artificial intelligence (AI) to find hidden brain abnormalities in patients with epilepsy caused by FCD

...BUT HOW DOES IT WORK?



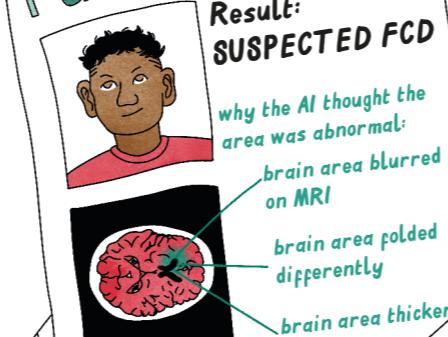
Anonymised MRI data from 1000 patients is given to our AI



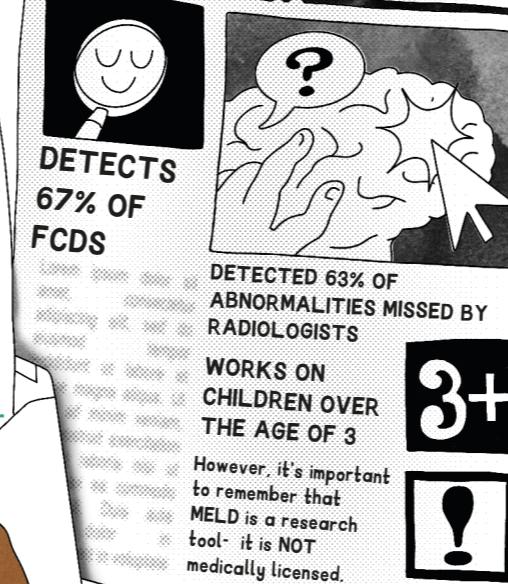
After processing the data, the AI is able to detect the part of the brain that is causing the seizures - the FCD.

The AI can now take a new patient's MRI data and produce a patient report that suggests to the radiologist where in the brain an FCD might be

Patient Report



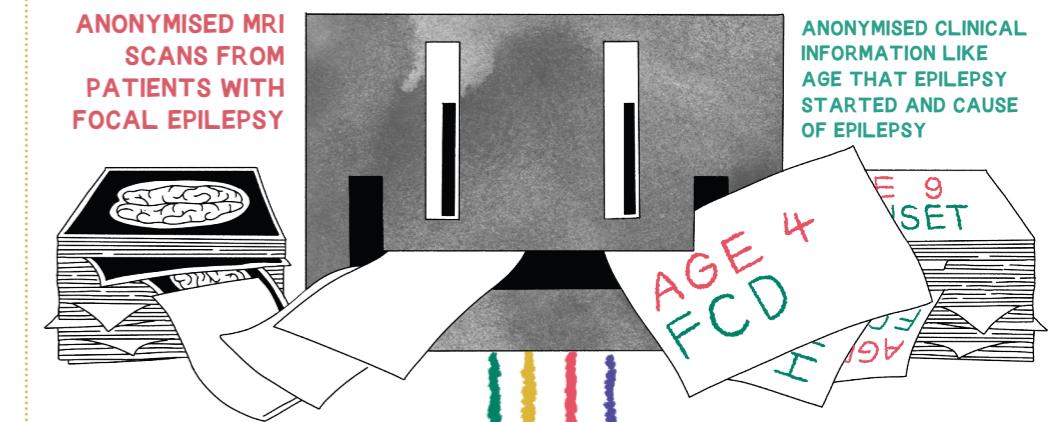
HEADLINE RESULTS



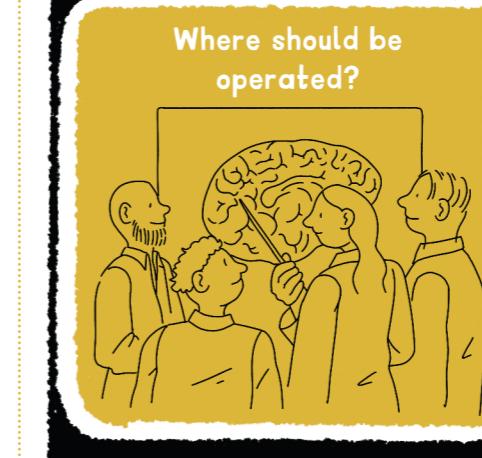
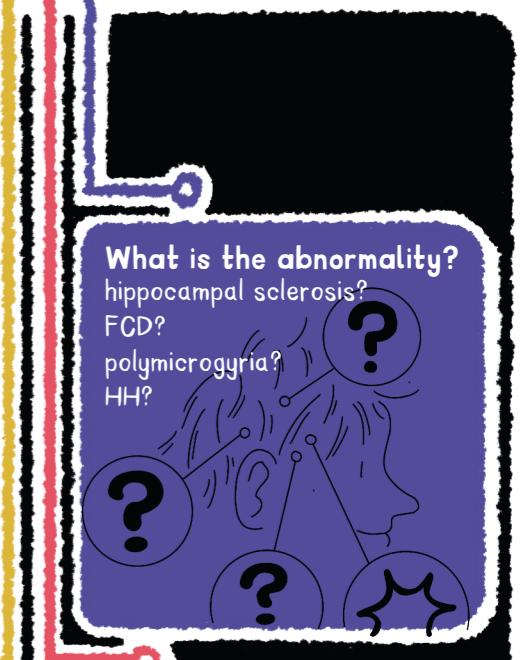
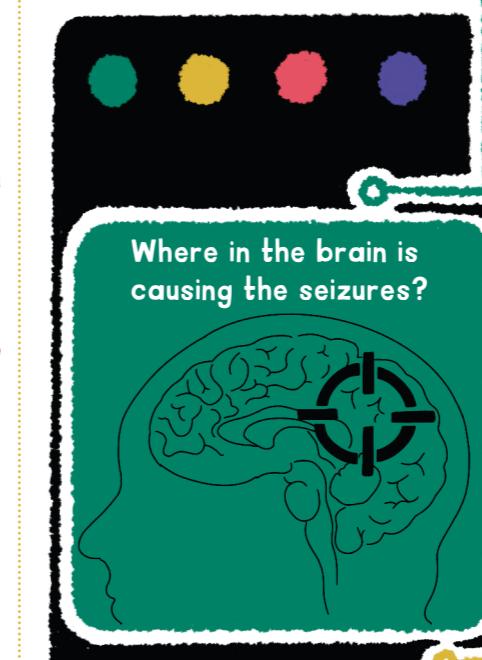
What next for the MELD Project?

In the future, we hope we'll be able to take these two datasets:

ANONYMISED MRI SCANS FROM PATIENTS WITH FOCAL EPILEPSY



Once the AI has interpreted the results, we're hoping to be able to answer these four questions when looking at a new patient's data.



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What do you think?
Let us know!



<https://meldproject.github.io/>