

BrainMRI AI

Semantic Search for Tumor Diagnosis



The screenshot displays the 'Brain MRI AI' interface. At the top right, the title 'Brain MRI AI' is shown. Below it, a grid of six MRI brain scan images is labeled A through F. To the right of the images is a text input field containing the query: 'Seems like a brain cancer on the right side and the patient authority and 40 years old how can I find similar documents for this cases in the past'. Below the input field is a blue microphone icon. A dark button with a magnifying glass icon and the text 'Analyze using previous case studies' is positioned below the input field. The 'Summary:' section follows, providing a detailed overview of search results. Below the summary is the 'Sources:' section, which lists four relevant documents with their titles and brief descriptions.

Brain MRI AI

Recorded
Thanks for talking.

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Analyze using previous case studies

Summary:

Based on the search results, it seems that there are several cases of brain tumors on the right side. Although specific information about the "patient authority" is not available, there are relevant cases of brain tumor patients around 40 years old. To find similar documents for these cases in the past, you can refer to the provided figures [3], [7], [2], [4], and the observation of age groups [5]. These sources provide insights into different types of brain tumors, including low-grade astrocytoma and glioblastoma multiforme, in patients within the age range of 41-60 years. It is important to consult with medical professionals and access more comprehensive resources for accurate and detailed information.

Sources:

1. Update on Brain Tumor Imaging.pdf
Fig 3. A 37-year-old man with right frontal low-g...
2. Perfusion MR Imaging of Brain Tumors.pdf
FIGURE 7. Delayed radiation necrosis in a 41-year-...
3. Evolution in diagnosis and detection of brain tumor-review.pdf
Fig 2. A 51-year-old man with right frontal glob...
4. Incidental Findings on Brain MRI in the General Population.pdf
Fig 4. A 59-year-old woman with right superior fr...

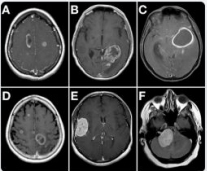


Problem

- 20%+ of radiology reports contain some sort of error
- Only 36% of their time used on actual image interpretation

Demo

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Generating summarized version using Vectara with sources

Relevant patient cases and research papers

Radiologist can record precise finding with proper format just by talking

Radiologist can edit their findings here after their recoding

Architecture



NEXT.JS

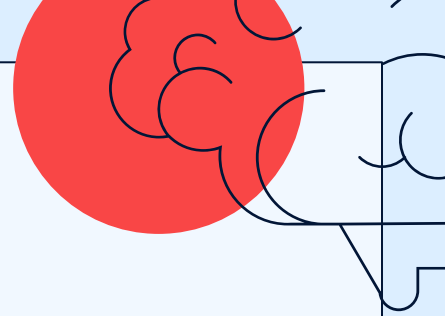


- NextJS, TailwindCSS, Shadcn → Frontend
- Vectara API → semantic search
- webkitSpeechRecognition API → record transcript

Use Cases



- Streamline the diagnostic process
- Enable radiologists to access pertinent information quickly
- Improve and speed up healthcare outcomes



Future Steps

- Generation of a formal report to doctors
- Develop fine-tuned LLM for radiology use cases

