

Clinical Problem

- Manual interpretation of EEG data takes time and is prone to human error.
- Significant inter-individual variability in brain activity makes it difficult to cluster findings across populations.
- The large amounts of data generated by continuous EEG monitoring make it difficult for clinicians to process and interpret data efficiently without automated tools.



User Needs

- Automated analysis of EEG data to reduce the workload and improve accuracy
- Product capable of interpreting and grouping the data of a large group of people
- Customized feedback based on individual EEG data, allowing for more precise tracking of brain health

Solution Space

Machine Learning Reports

 Machine Learning algorithms detect abnormalities from EEG data

Market Analysis

For AI in Healthcare:

- CAGR ~45% from 2023-2033
- Growth Drivers: Decline in number of
 - physicians Increase in diagnosed
 - neurological disorders



Model Specifications

| Customer Needs | Specifications |
|-------------------------|---|
| Accuracy | Can decipher between epileptic events and other artifacts |
| Precision | Can consistently detect epileptic events |
| Real-Time Monitoring | Can provide real-time feedback and analysis of EEG data |

Table 1: The table above lists the design specifications based on the identified user needs. Key specifications include greater than 98% accuracy, greater than 98% precision, and less than a 10 second delay in model classification output.

Machine Learning Model for Epileptic Event Detection in EEG Signals

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Prototyping and Validation

collected data sets and 450 segments from Bonn data sets. Overall, the model performed well with 100% precision for seizure detection, 98% precision for pre-seizure detection, and 100% recall for normal brain activity.

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