Considerations for Designing Ambulatory EEG Systems



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Current ambulatory electroencephalography is inconvenient, interferes with daily life, and is not accessible to patients of all backgrounds

PROBLEM



By considering the human interaction EEG involves, aEEG systems can be better designed to improve readings and patient

experience.

SOLUTION

The usability of ambulatory EEG can be optimized by implementing three considerations in the design process of aEEG systems:

1. Hair type compatibility

EEG does not work well with coarse, curly hair
EEG electrodes must be designed to be compatible with all hair types

•aFFG is commonly used for enileptic natients which carries a stigma

2. Visibility and stigma	 By integrating aEEG into existing head ware, patients are less likely to be subject to stigmatization and discrimination
3. Ease of use and cost effectiveness	 •aEEG requires contact with the scalp over a prolonged period of time. •Electrodes that are made of low cost materials and can work for extended periods of time wet or dry increases user friendliness and accessibility.



Examples of humancentered design that have the potential to



Braiding method for curly hair allows better scalp contact than comparable methods used for straight hair. This method decreased impedance by a factor of four.



Conductive sponges perform comparably or better than traditional electrodes whether wet or dry.

make ambulatory EEG more accessible while preserving or improving the accuracy of EEG.

REFERENCES and ACKNOWLEDGEMENTS

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