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Title: Generación de mapeo cerebral utilizando emotiv 3D brain activity map para aplicación futura en rehabilitación robótica.

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Introducción

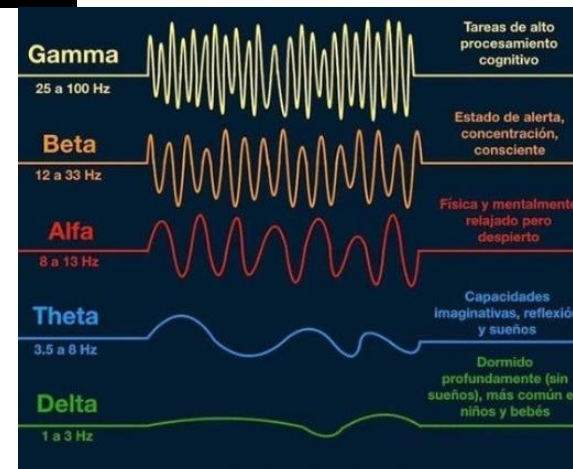
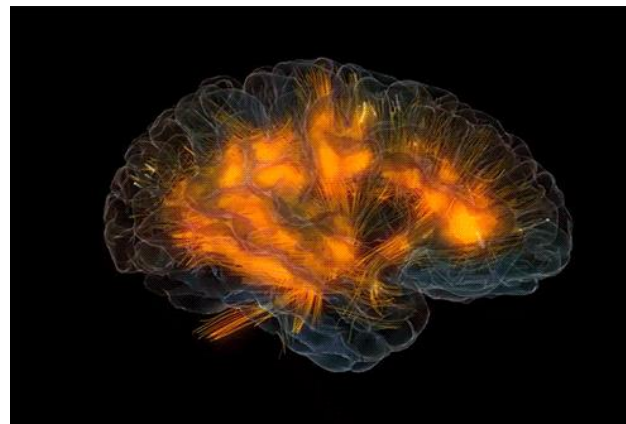
Ondas cerebrales

Electroencefalógrafo

Electroencefalograma

Brain Computer Interface (BCI)

Rehabilitación robótica



Revisión de literatura



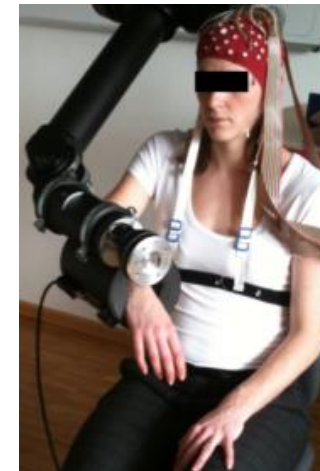
(Pfurtscheller, Müller-Putz, Scherer, & Neuper, 2008)



(Hochberg et al., 2012)

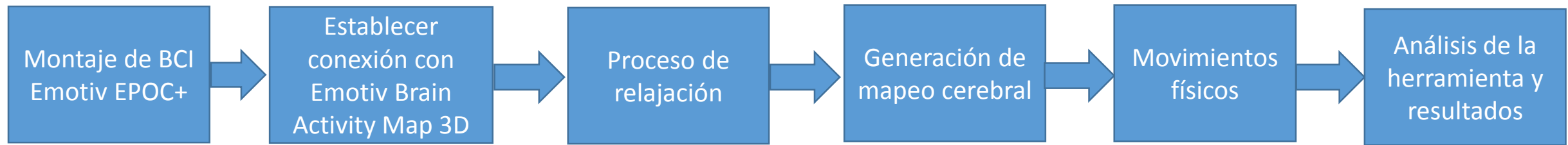


(Sarac, Koyas, Erdogan, Cetin, & Patoglu, 2013)



(Gharabaghi & Sch, n.d.)

Metodología



Conexión con el dispositivo

Proceso de relajación



Generación de mapeo cerebral

Visualización en 3D

- **Delta (0.5-4Hz):** indica **sueño profundo, tranquilidad** y, a la inversa, **excitación o agitación** cuando se suprimen las ondas delta
- **Theta (4-8 Hz):** indica estados de **meditación profundos, soñar despierto** y tareas automáticas
- **Alfa (8-15 Hz):** indica estado de **alerta relajado, estados de descanso y meditación.**
- **Beta (15-30 Hz):** indica **vigilia, estado de alerta, compromiso mental y procesamiento consciente** de la información.



Gráfico de señales

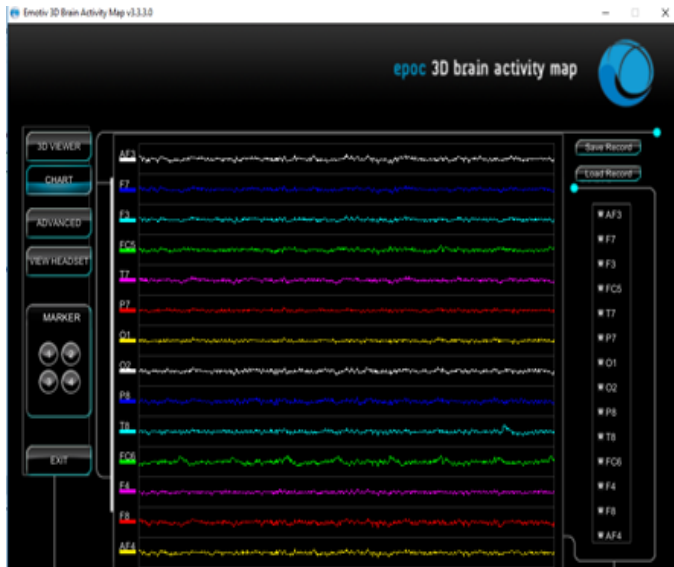
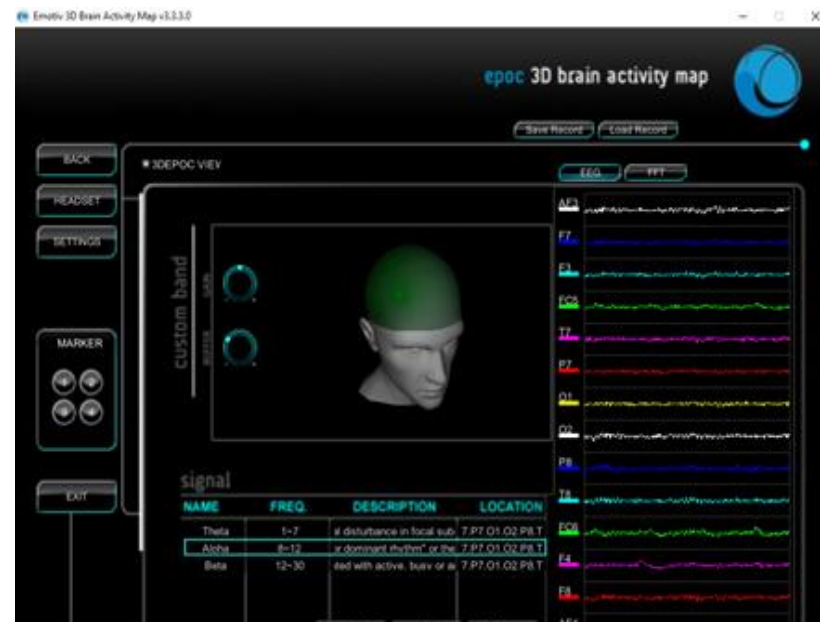
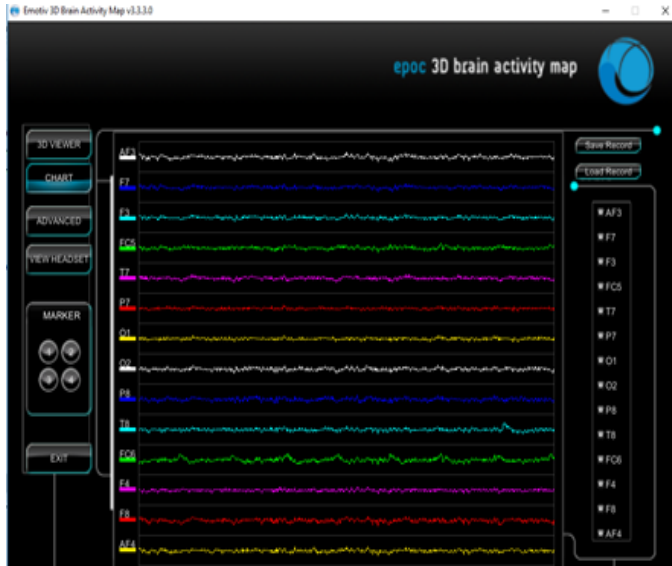


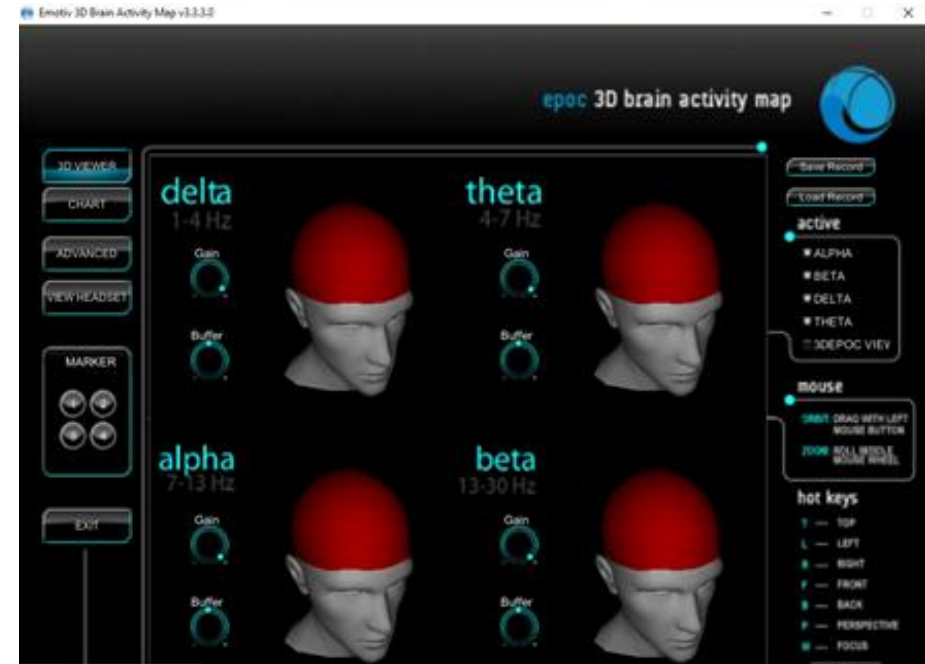
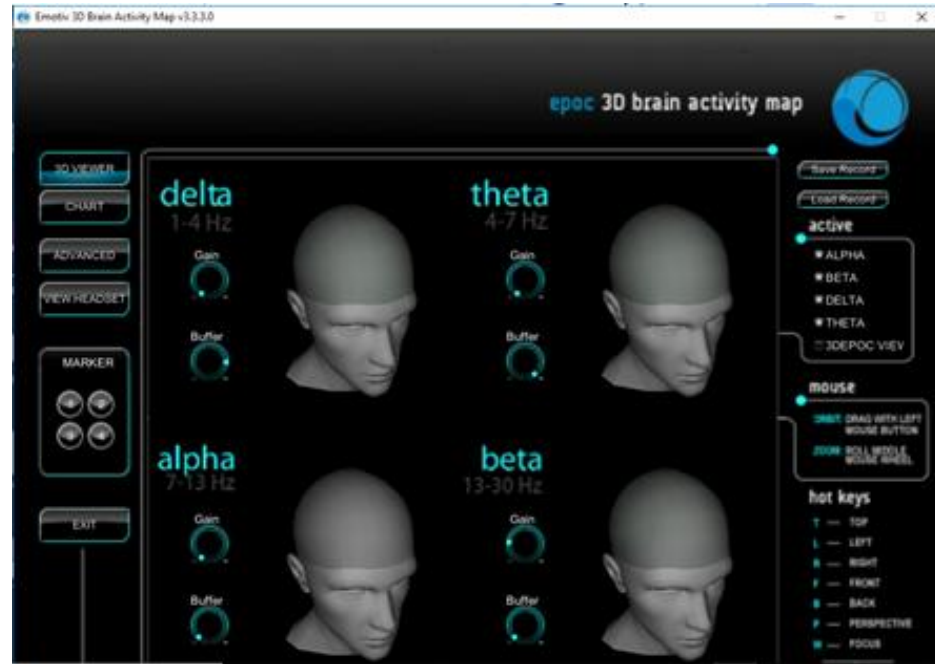
Gráfico de señales



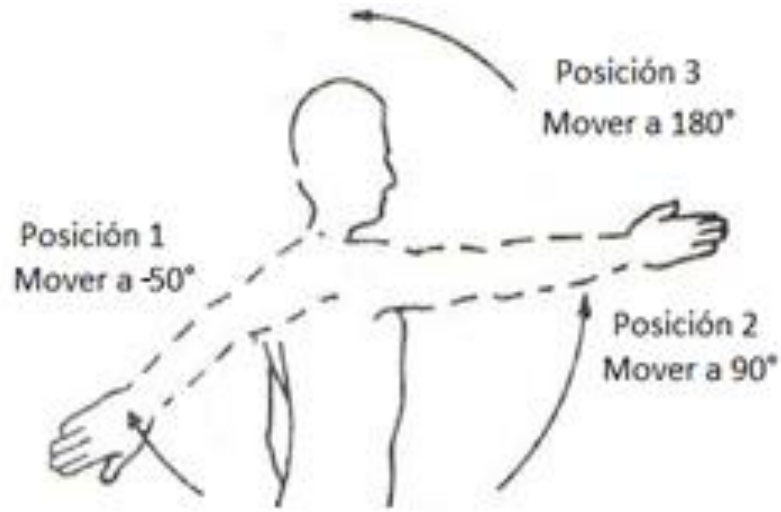
Filtros DC de tipo: Hanning, Hamming, Hann, Blackman y Rectangle.
Filtros de ventana y establecer frecuencia máxima.



Ganancia y buffer



Resultados



Conclusiones

- Las ondas cerebrales están asociadas a procesos físicos y cognitivos específicos. Durante mucho tiempo, su estudio, comprensión e integración en investigaciones fuera del área de neurología para su integración en procesos de la vida cotidiana estuvo limitado.
- Herramientas como la que se ha presentado, permiten obtener información con detalles relevantes que pueden ser integrados en diversas áreas de investigación como la rehabilitación robótica.
- Se trabajará en la generación de mapeo cerebral para monitoreo de la actividad en sujetos con alguna lesión de brazo y así realizar un comparativo de resultados obtenidos a partir de pruebas en sujetos sanos y con lesión de brazo.

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- A1 PRODEP

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