



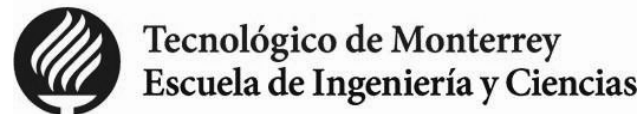
Digital Twins in Education

Enhancing Student Well-being and Academic Performance with Biometric Insights and Machine Learning

U21 Health Sciences Group 2024 Annual Meeting
Theme: Data-Driven Health Care and Teaching

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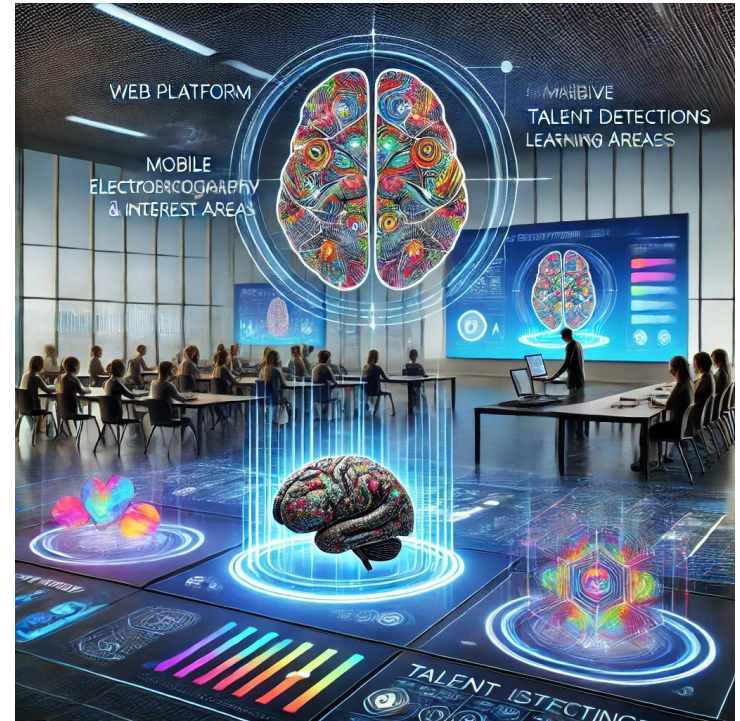





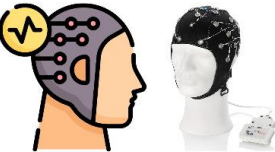


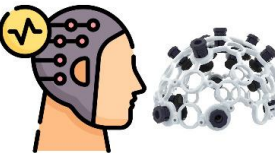


Introduction

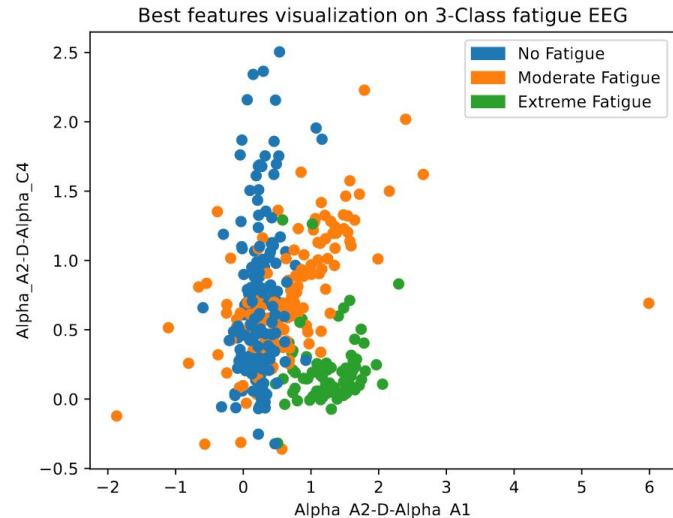
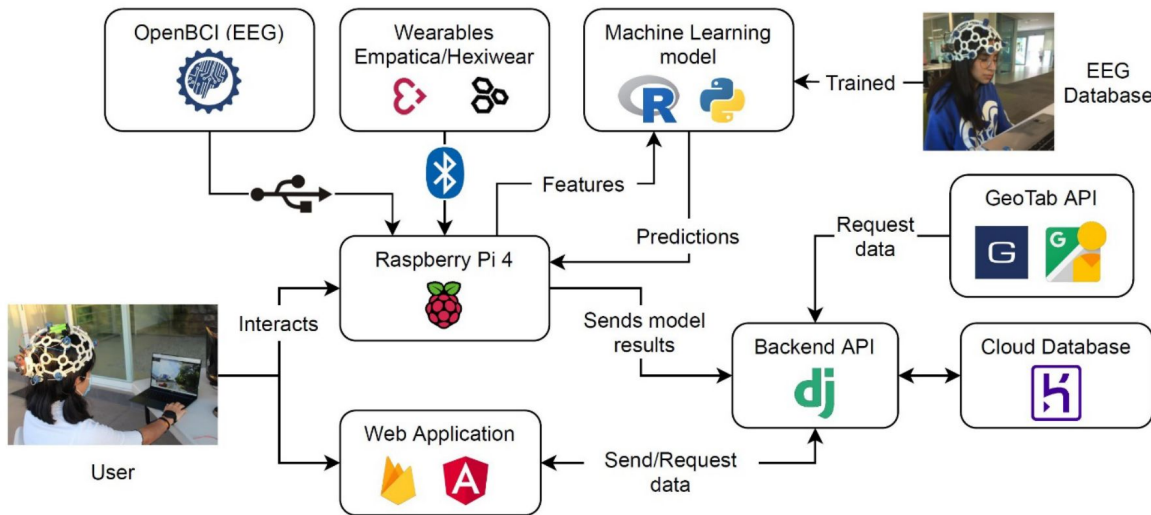
Innovative technologies revolutionize teaching methods and lead to more proficient education.

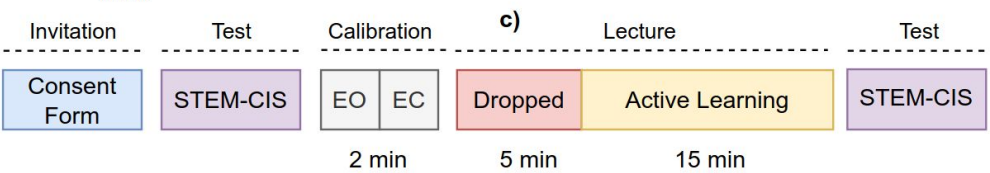
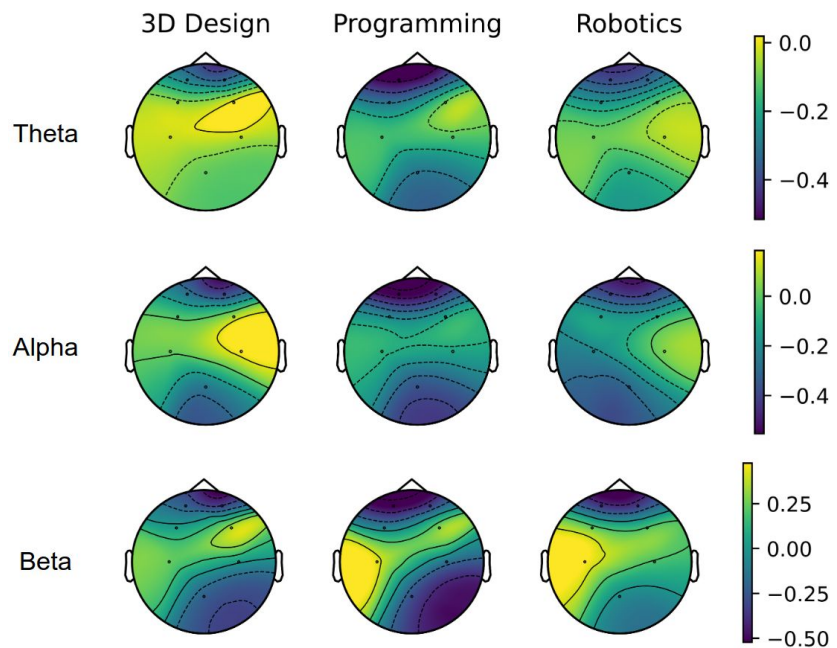
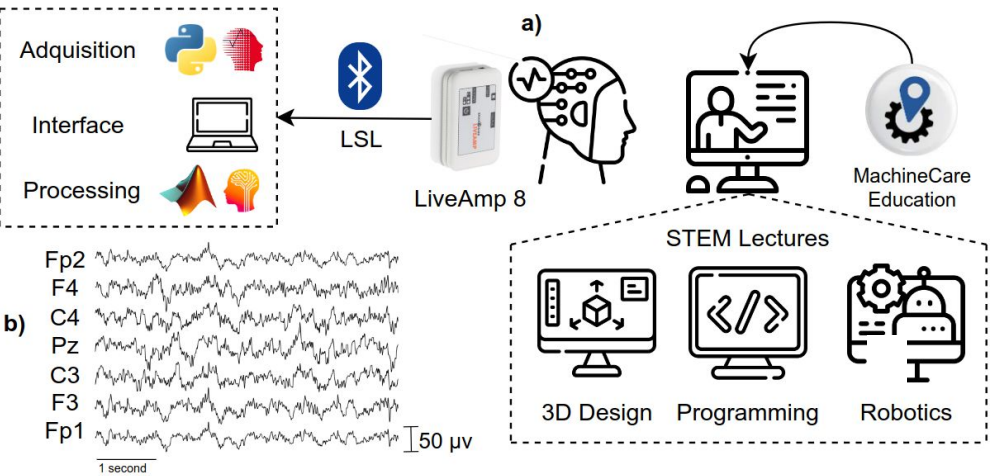
This presentation is about three EEG published projects that gather **neurocognitive learning insights**.

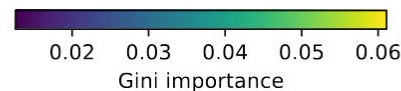
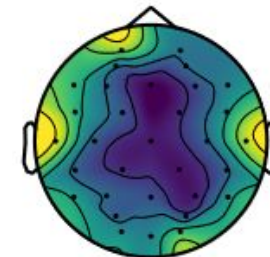
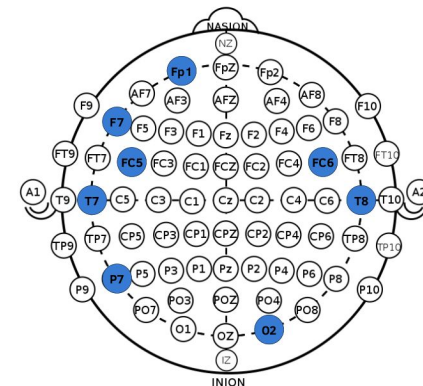
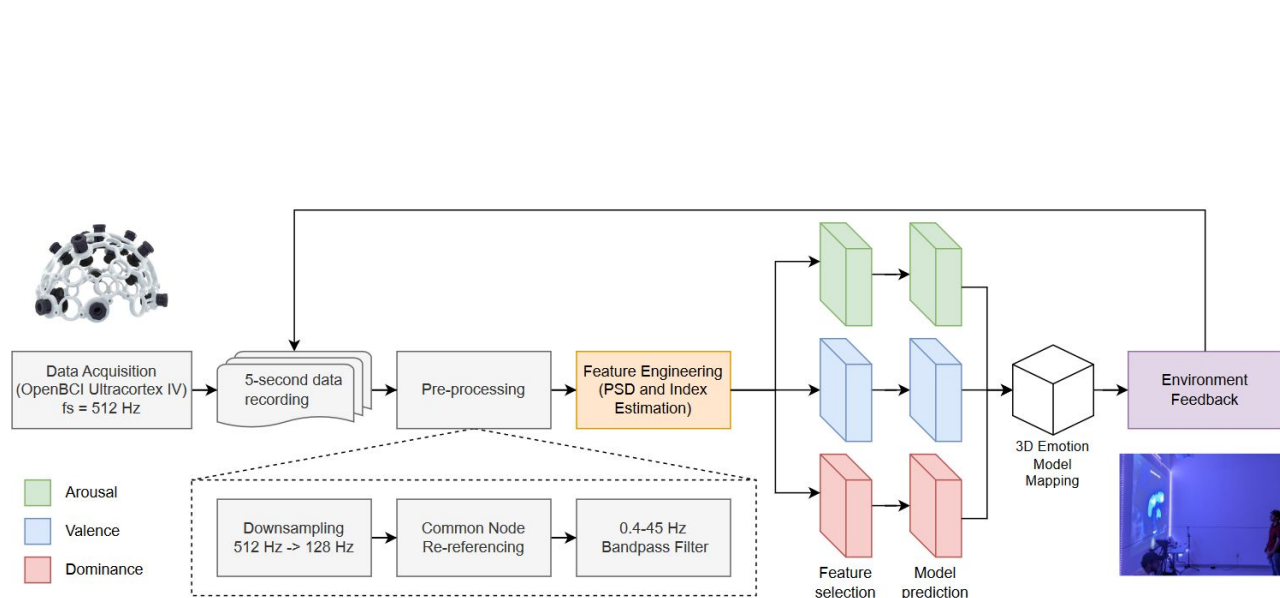
1. **Advanced Learner Assistance System (ALAS)** presents a framework that predicts mental fatigue and synchronizes it into a web-platform.
2. **Talent Detection** predicts professional interest in STEM and shows brain activation patterns.
3. **Neurohumanities Lab** recognizes student's emotion and enhances their learning experience via an interactive immersive space.



Project	Device	Prediction	Interface
<p>Advanced Learner Assistance System</p>	 <p>4-channel Enophone</p>	 <p>Mental fatigue</p>	
<p>Talent Detection</p>	 <p>8-channel LiveAmp</p>	 <p>Interest in STEM</p>	
<p>Neurohumanities Lab</p>	 <p>8-channel OpenBCI</p>	 <p>Emotion</p>	







Conclusion

Harnessing Physiological Signals for Adaptive Learning

- Underutilized Potential
- Optimizing Learning Experiences
- Explainable Models



Mental fatigue



Interest in STEM

Personalized Learning in Contemporary Education

- Neurocognitive Insights
- Role of Digital Twins
- The Need for Change



Emotion recognition

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