Project Overview: NeuroLLM – Building a Brain-Literate AI

Xavier Brown, an Honors psychology student at Portland State University, is developing a neuroscience-informed artificial intelligence system that models how light influences brain physiology using transcranial photobiomodulation (tPBM). The project combines MCX light simulations, fNIRS and EEG alignment, and region-specific blood flow modeling to fine-tune large language models (LLMs) with simulation-grounded data. The goal is to build an open-source, reasoning-capable AI that can support neurotechnology research and education.

Current Needs:

- Faculty mentorship or guidance
- People interested in non-invasive treatments for neurological disorders or related conditions
- Collaboration with interested students with coding experience

If you are interested in supporting or learning more about this research, feel free to contact Xavier at xbrown@pdx.edu or visit www.xavierbrownartworks.com.

BUILDING A BRAIN-LITERATE AI: MODELING LIGHT, BLOOD, AND COGNITION

I'm developing a neuroscience-informed AI system that models how light affects brain physiology using transcranial photobiomodulation (tPBM) data.