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SYSTEM FOR OPTICALLY-MEDIATED NEURAL BIOMARKER ON STIMULATION ASSESSMENT DURING CLOSED LOOP NEUROMODULATION

Real-time biomarker monitoring during stimulation for personalized neurodevice feedback and therapy optimization.

Researchers at Purdue University have developed a closed-loop neuromodulation system designed to help medical device companies more precisely target treatments for individual patients with neurological diseases or disorders. Unlike current neuromodulation platforms that typically measure disease-related biomarkers only during resting, non-stimulated states or fail to provide any readout of therapeutic effect, this new technology enables real-time measurement of biomarkers during stimulation. It also delivers targeted feedback on the therapeutic effects of stimulation as it is being applied.

Technology Validation:

Rats were implanted in the auditory thalamocortical pathway with a stimulating infrared neural stimulation optrode into the medical geniculate body and a multichannel recording array into primary auditory cortex. Successful drive of neuron action potential firing rates to a desired target was recorded and a real time action potential detection algorithm was implemented.

Advantages:

-Real-time Biomarker Monitoring

-Therapeutic Feedback Loop

-Personalized Treatment

Applications:

-Treatment of Neurological Disorders

Technology ID
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Category
Digital Health & Medtech/Health Informatics
Digital Health & Medtech/Implantable Medical Devices

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-Next-Gen Medical Devices

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Intellectual Property:

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