

Analyzing biological signals and development Assistive-Technology Systems

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Keywords Neural spike count correlation, Bioinformatics, Brain Machine Interface

Technical Support Skills

- Statistical analysis for biological signals
- Recording biological signals (EEG, EMG, Heart Rate)
- Development multiple micro electrodes



Research Contents Analyzing biological signals and development Assistive-Technology Systems

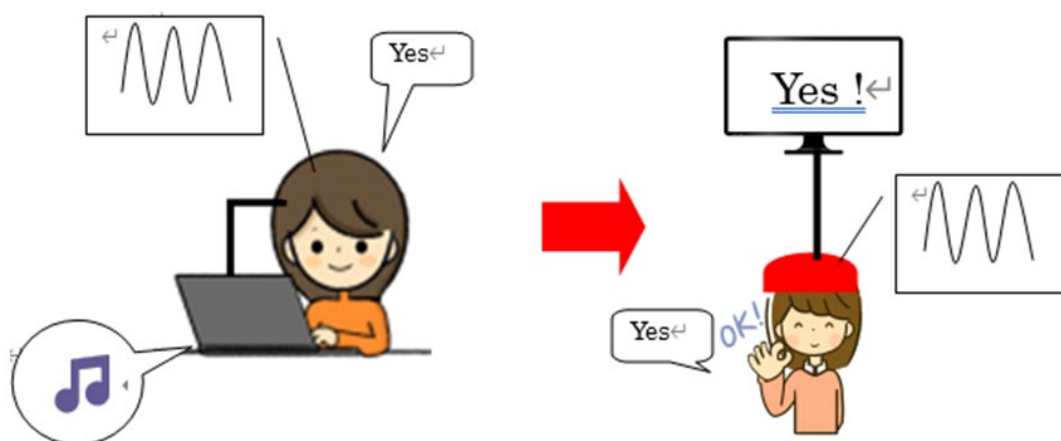
In our laboratory, we recorded some neuronal or biological signal (ex. neuron spiking activity, EEG and EMG et. Al) and analyzed these signals to decode information or control some Assistive-Technology (AT) systems. The last few years, we have developed some AT systems, for examples, Character Input System by EMG signals of blinking activity, Elderly Watching System by measuring heart rate and technology of wireless communication, and more.

Recently, we studied AT systems controlled by EEG signals. Especially, we focus on controlling amplitude of EEG signals by Bio-feedback training. Neuronal and biological signals generally vary greatly, and the instability would reduce accuracy of AT systems. To solve these problems, in previous studies, improve accuracy of recording systems or algorithm of analyzing neuronal signals (ex. machine learning). However, these improvements would induce difficulty to become popular these systems for prices and technological ability. Biofeedback Training enable to control amplitude of EEG signals autonomously. We estimate that the phenomenon would contribute improve accuracy of several AT systems.

■ Treaining to modurate amplitude of EEG autonomously

If EEG amplitude exceed a threshold, a subject was notified by a comfortable melody.

After treaining period, a subject enables to control EEG amplitude autonomously.



Available Facilities and Equipment

Electroencephalograph	
EMG recording system	