GUIDE TO NEUROPROSTHETICS

Neuroprosthetics

- Discipline related to biomedical engineering and neuroscience and is focused on developing neural prosthesis

- Brain Computer Interface (BCI) : device that can monitor and decode the electrical signals of the user's thoughts and convert that information into some type of machine control

Types of BCI

- INPUT BCI: take something from outside and put it in as perception

  - Intention→ convert it to an action

Signal Detection

- Use different brain signals to interpret the intentions

- Majority of the neurons can be found on the surface of the cortex

- Place electrodes in different spots to get signals

Signal Detection

1) EEG: "electroencephalogram" device is placed on the scalp, non invasive

2) Single units: hair like electrodes that monitor single neurons, highly invasive

3) ECOG "Electrocorticography": placed directly on the surface of the brain