

# GE1322

## Introduction to Human Bionics

<http://www.cityu.edu.hk/ug/current/course/GE1322.htm>

- Fly toy helicopters with your mind
- DJ music based on your mood
- Control video games by how you feel
- Monitor health by recording brain waves



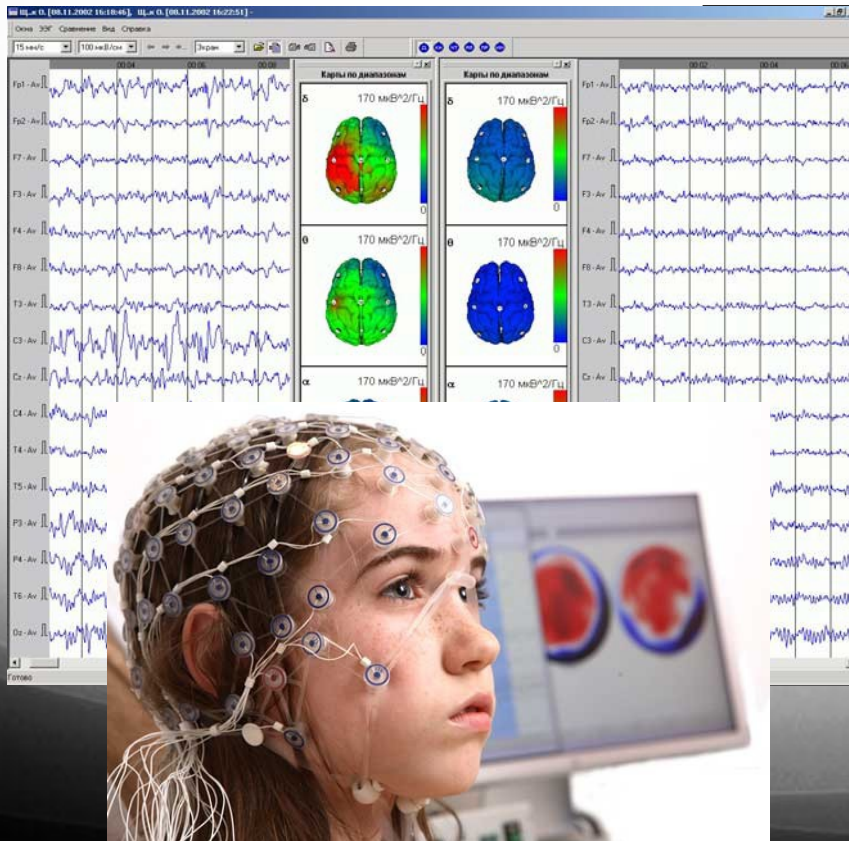


- Can we upload our consciousness to the internet?
- Are concepts shown in Sci-Fi movies possible in reality?
- Does pop culture inspire front-end science, or vice versa?



# Electroencephalography

- Today, human brains waves can be used to control computer cursors and manipulate wheelchairs.



# Modern Neuroprosthetics

- Conversely, a machine can feed data into human brain to enhance its performance.

Retinal Prosthesis



Cochlear Implant

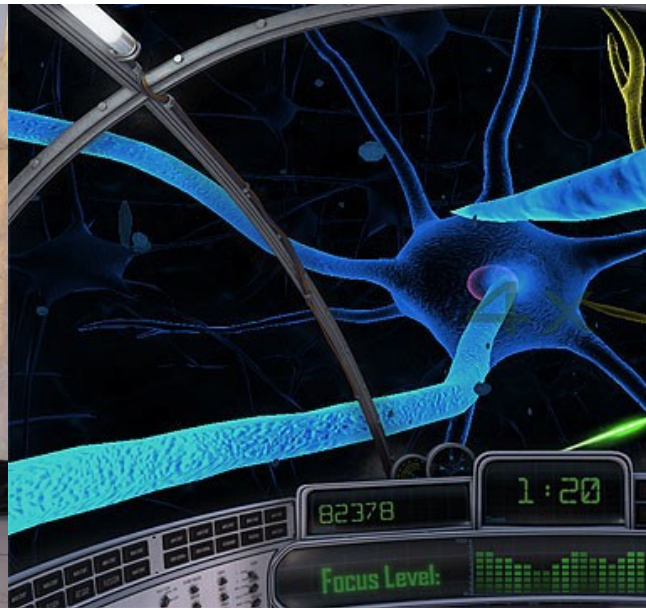


# Brain-Machine Interfaces

- This course introduces current trends in the gaming industry, patient care, sports enhancement, military field, and also daily routines.



NeuroDisco



NeuroStorm

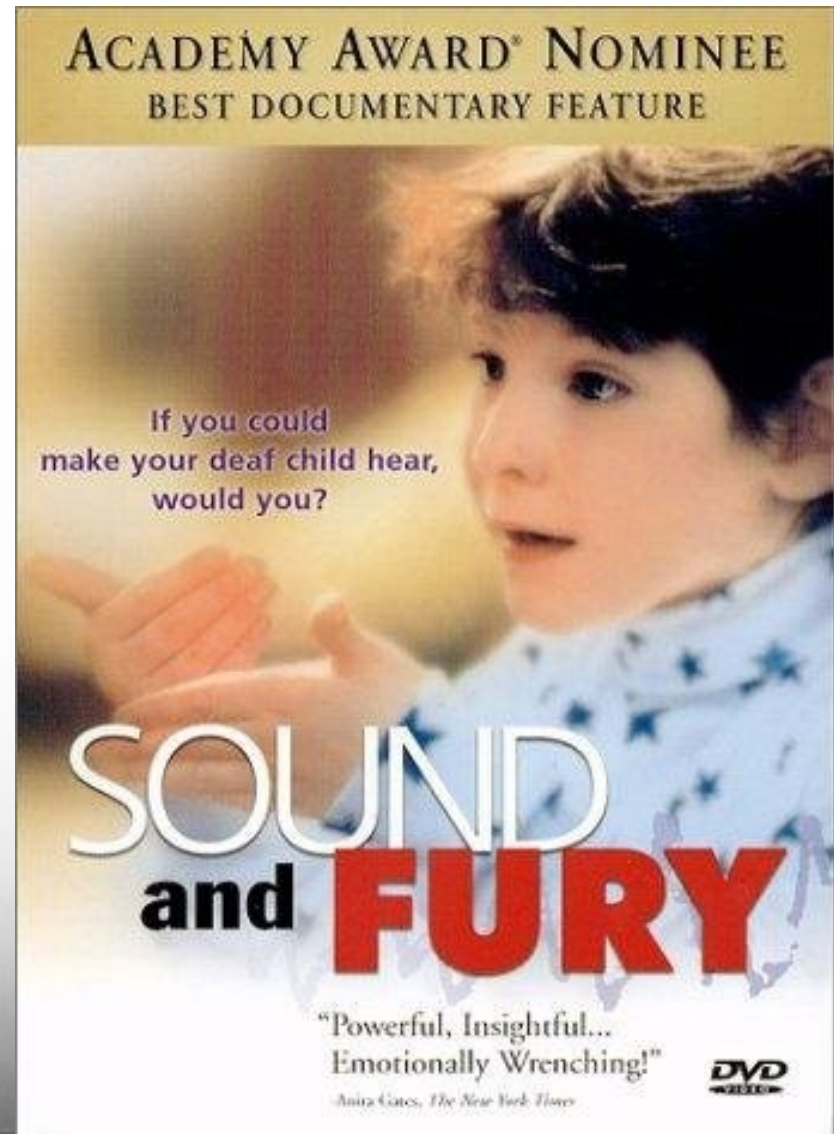


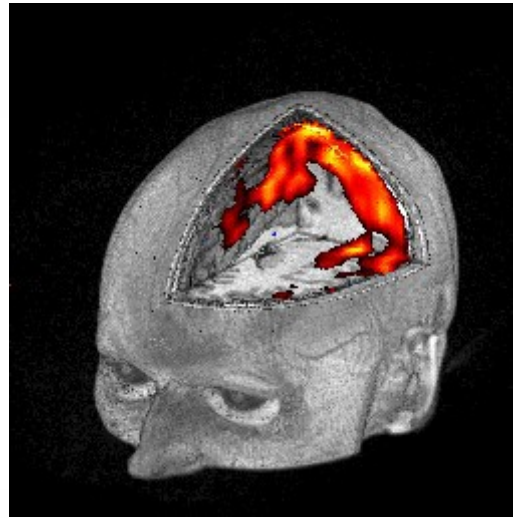
NeuroWear

- Students will learn basic working principles, and gain hands-on experience in design and operation

# Social Challenges

- What is the public's current perception of science?
- How are regulations involved in technology transfer?
- What ethical considerations need to be addressed?
- How can awareness be promoted?





## Course Aims

- Encourage intellectual exchange between students in the context of brain-machine interface.
- Consider the impact on health care, medicine, and technology
- Practice translating abstract scientific knowledge into working systems.
- Learn basic principles in biology and engineering in the broader context of societal needs, i.e. pop culture, ethical and social challenges.