Health Science and Medical Engineering Lab

健康医工学研究室简介

MEIJI UNIVERSITY

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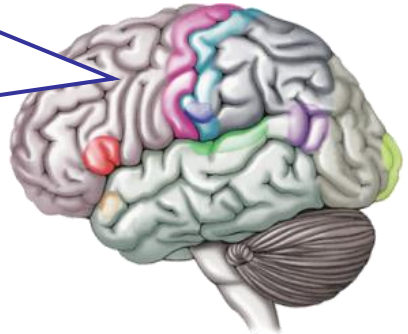
生物信号测量和医学应用

Brain activity 大脑活动

Cognition, memory
motor intent, emotion

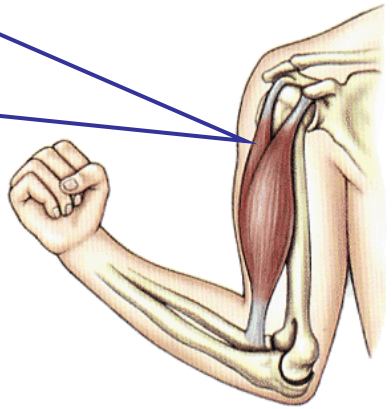
认知，记忆
运动意图，情绪

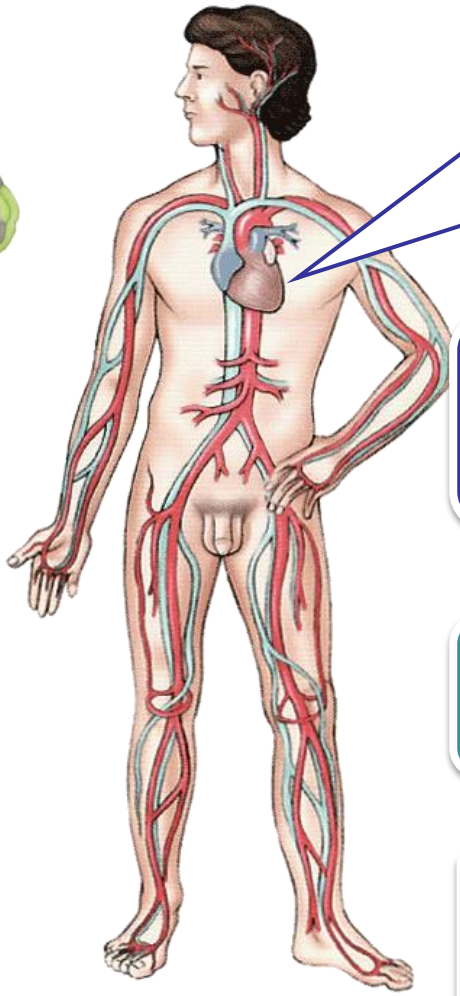


Muscle activity 肌肉活动

Muscle power, fatigue
blood microcirculation

肌肉力量，疲劳
血液微循环





Cardiac cycle 心脏活动周期

Autonomic nervous activity
mental stress evaluation

自主神经活动
心理压力评估

Biosignal measurement technology
生物信号测量技术

+

Advanced biosignal processing
先进的生物信号处理

=

Accurate & efficient medical technology
准确高效医疗技术

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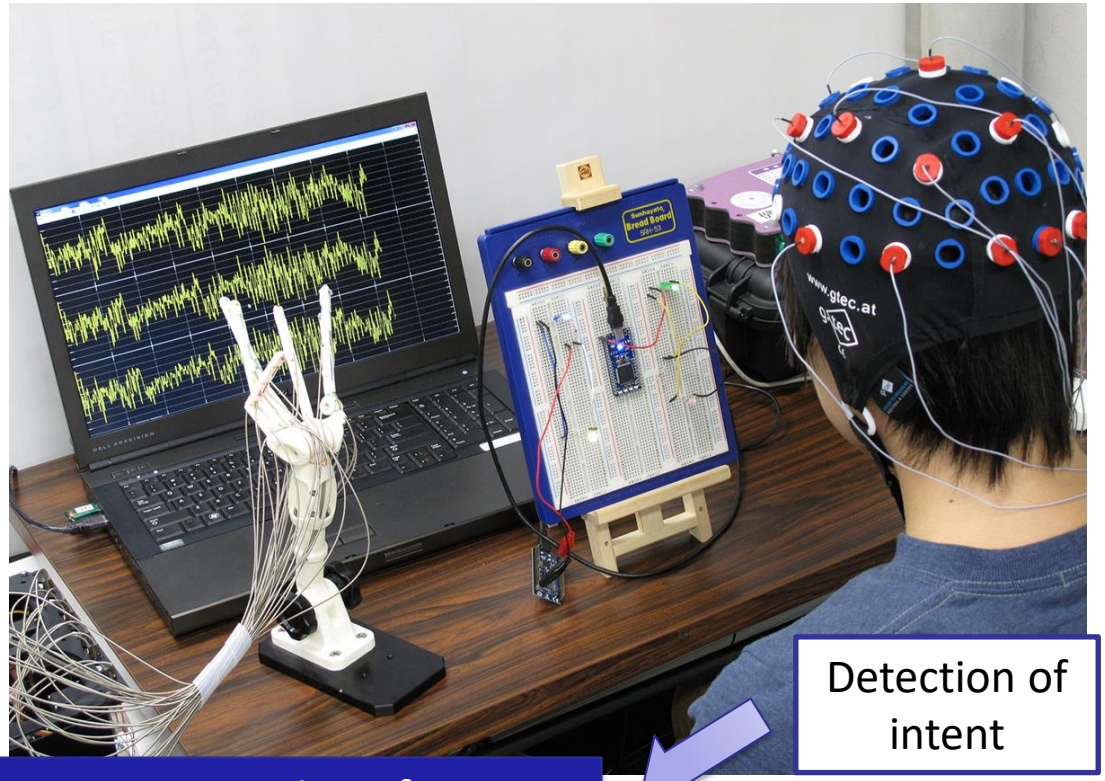
Brain machine interface (BMI)

Technology that automatically interprets one's intention or mind to directly operate a machine 自动分析意图或者思想去直接操作机器的技术



- **Development of living support tools for handicapped people**
  开发残疾人生活支持设备，用脑电波控制机械手等
- **Development of rehabilitation device for stroke patients with hand paralysis** 中风患者手的瘫痪康复器的研制

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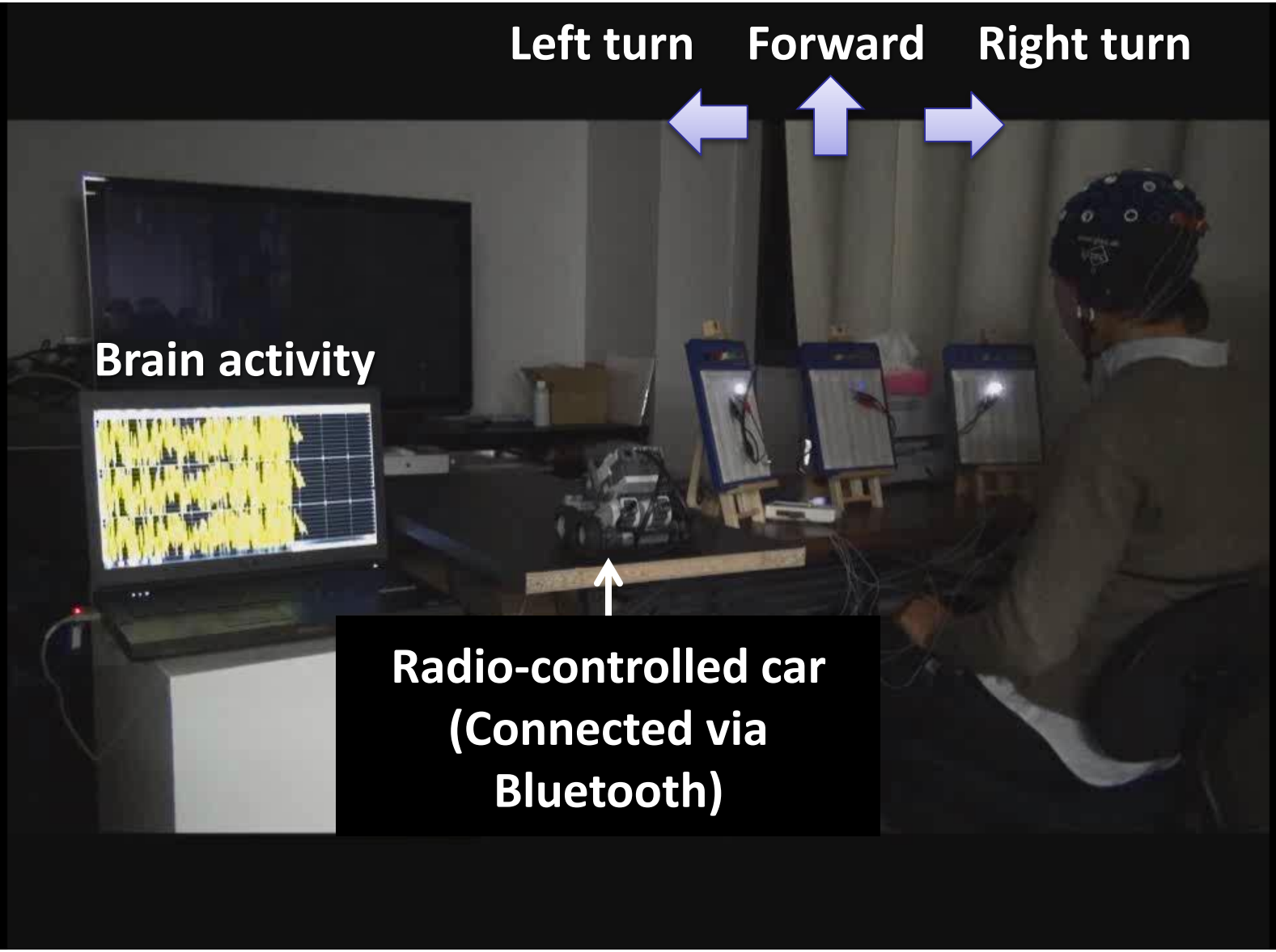
Brain-controlled car 脑控电子车



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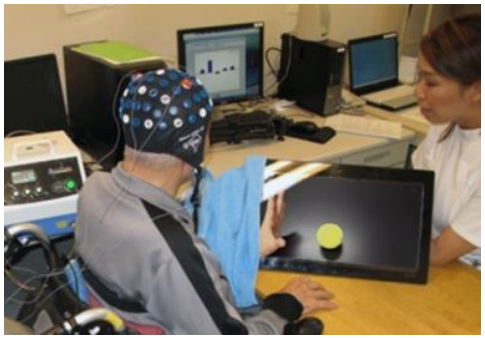
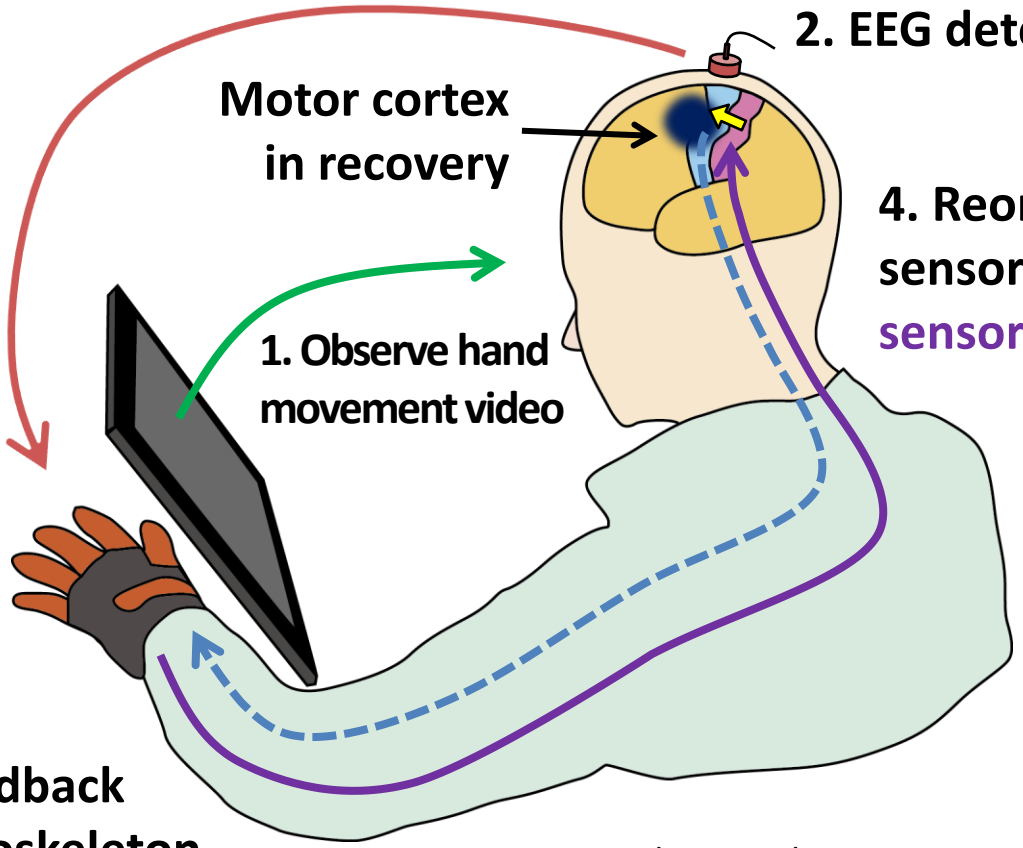
Digital mirror box therapy 数码镜盒疗法



Clinical trial in Suisyokai Murata Hospital (Osaka)

用思想控制的机械手... Video material click here

3. Sensory feedback is given via exoskeleton robotic device



4. Reorganization of motor-sensory loop via visual and sensory feedback

Functional Recovery

Matsubara et al., IEEE EMBC conference Proc. 2015
Tani et al., Neuroscinece Research. 2018
Ono et al., Neuropsychologia. 2018
Ono et al., The IEEE SMC 2018 conference Proc. 2018 (Invited)

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