

## ***Motor Imagery BCI for Virtual Hand Control***

**Goals:** To create a BCI system using motor imagery to control movement of hand in a virtual workspace in real-time.

### Experiment Design – self

#### Subjects

- Gender: Male
- Age: 21
- Jobs: Student
- Use Right-Hand default
- Naïve BCI users: Reduce Bias
- Healthy, No neurophysiological anomalies or musculoskeletal disorders

#### Time Session

- 1 person per X days
- 1 day per X runs
- 1 Runs per X trials
- 13.00 – 16.00 pm

#### Environment




- Room Temperature at 25 °c
- Low noise
- Location at FiBo or Home?

## Offline Session

- Practical with real hand.
- Subjects start testing with instruction from monitor. Then we start collect data.
- Using the data to create and train model for classification in real-time

### A. Movements of the right-hand

There are 3 movements; Subject must mimic the action for 1 minute

1). Resting	
2). Grasping	
3). Opening	

### B. 1 Trial per 10s

Resting 3s

- Start collect EEG Data
- Both arms and hands resting comfortable at subject's lap.
- Both eyes stare at monitor screen which has Fixation Cross inside.

Preparation 3s

- The monitor will display a word "Grasping Time" in Yellow

Motor Imagery 4s

- The word will turn in to Green which mean it's time to imagine

**Must do 50 Trial** ()



## Experiment Design

### Subjects

- Gender: Male, Female
- Age:
- Jobs:
- Use Right-Hand default
- Naïve BCI users: Reduce Bias
- Healthy, No neurophysiological anomalies or musculoskeletal disorders
- Or test it yourself

### Time Session

- 1 person per X days
- 1 day per X runs
- 1 Runs per X trials
- Morning Noon Night – Which time brain is fully active

### Environment

- Room Temperature at \_\_\_ °c
- Low noise

### Offline Session \*อยากรู้ว่ากำมือและแบมือคลื่นสมองต่างกันไหม

- Practical with real hand
- Subjects start testing with instruction from monitor. Then we start collect data.
- Using the data to create and train model for classification in real-time
  - A. Test in 4 periods in each trial
    - a.

CHECK LIST		
WHAT TO DO	Note	Check
Consent form	Experiment must be approved by university or else	
Conditions	ข้อกำหนดการเข้าร่วมและคุณสมบัติในการทดสอบ	
แผนการรับสมัคร	สำหรับการผู้ทดสอบ	