

Motor imagery classification by using EEG

I. INTRODUCTORY SENTENCE

You are invited to participate in a research study conducted as part of the thesis by Mr. Pongkorn Settasompop under the guidance of Prof. Chaklam Silpasuwanchai at the Asian Institute of Technology (AIT).

II. PURPOSE OF THE STUDY

The study focusing to collect motor imagery data by using EEG

III. PROCEDURES

This experiment consists of two phases:

- 1) Baseline experiment.
- 2) Motor imagery run.

More details are given below:

1. Baseline experiment (2.1 minutes)

In this phase, you will need to do two section:

1.1 Open eye

In this section, you will need to open eye in 60 second without blinking your eye. After 60 second, the sound alert and fixation cross will show on screen. You can rest 5 second before go to next section.

1.2 Close eye

In this section, you will need to close eye in 60 second. After 60 second, the sound alert and fixation cross will show on screen. You can rest 5 second before go to next section.

2. Motor Imagery experiment(17 minutes)

In this phase, you will need to attend the CSIM building at AIT ([Google Map](#)).

2.1 Preparation

- **Avoid anything with caffeine** on the day of the test because it can affect the test results.

- You can wash your hair the night before or the day of the test, but do not use conditioners, hair creams, sprays, or styling gels. Hair products can make it harder for the sticky patches that hold the electrodes to adhere to your scalp.

For more details about EEG measurement, please refer to the link [here](#).

2.2 Assessment Procedure

The assessment session consists of four studies following by order:

- 1) Executed left hand (1 minutes).
- 2) Imagined left hand (1 minutes).
- 3) Executed right hand (1 minutes).
- 4) Imagined right hand (1 minutes).

This study have 3 sections, 4 block(represent of four studies), and 12 trials for each study, each trial is 5 seconds long and 5 seconds of resting. In between block, there is a 8 seconds break.

In total, the session takes **19.1 minutes**.



Figure 1. A participant wearing an EEG Electrode Cap

2.2.1 Executed Study

In this study, you will be instructed to sit in a chair in experiment room. You will be wearing an EEG Electrode Cap (as shown in Figure 1). An in-ear headphone (the one inserted into your ear canal) should be worn for listening to resting (you can bring your own headphone if it is an in-ear). Left or right arrow will show on screen. You need to close your fist according to the arrow shown on the screen. You can open your fist after sound alert and fixation cross show on screen.

2.2.2 Imagined Study

In this study, you will be instructed to sit in a chair in experiment room. You will be wearing an EEG Electrode Cap (as shown in Figure 1). An in-ear headphone (the one inserted into your ear canal) should be worn for listening to resting (you can bring your own headphone if it is an in-ear). Left or right arrow will show on screen. You need to close your eye and imagine that you close your fist according to the arrow shown on the screen. You can open your fist after sound alert and fixation cross show on screen.

IV. POTENTIAL RISKS / DISCOMFORTS AND THEIR MINIMIZATION

You may hear alert sound which can make you frightened. To solve this problem, we will test to participant first before perform experiment to ensure that sound will not affect to participant.

V. POTENTIAL BENEFITS

There are no direct benefits to you. However, the outcome of this experiment could push the boundary of BCI and classify a motor imagery data to apply in gamification field.

VI. CONFIDENTIALITY

Any information obtained in this study will remain very strictly confidential, will be known to no one, and will be used for research purposes only. Codes, not names, are used on all test instruments to protect confidentiality.

You can review the audio/video recording of the procedure. We will erase the entire audio/videotape or parts of it if you require us to do so.

VII. PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. This means that you can choose to stop at any time without negative consequences.

VIII. QUESTIONS AND CONCERNS

If you have any questions or concerns about this research study, please feel free to contact us. Our details are listed below:

1. Name: Mr. Pongkorn Settasompop

Email: st121622@ait.asia

I understand the **2.1 Preparation** and will follow the restriction.

X. SIGNATURE

I _____ (Name of Participant)

understand the procedures described above and agree to participate in this study.

Signature of Participant

Date

**** Bring this signed document with you on the EEG measurement day ****