

# How well you move? A Pilot Study on Movement Variability

\*Required

## Introduction

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The aim of this study is to explore how participant's performance of simple movements affects the movement variability in the following conditions: a) following an image while not hearing a beat and while hearing a beat; and b) following a humanoid-robot while not hearing a beat and while hearing a beat.

The estimated time for the study is between 40 to 45 minutes.

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## 1. Online Participant Information Sheet

### Who will conduct the research?

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The study is conducted by Miguel P. Xochicale as part of his PhD degree in Electronic, Electrical and System Engineering at the University of Birmingham. The research is supervised by Professor Chirs Baber and Professor Martin Russell in the Electronic, Electrical and System Engineering department at the University of Birmingham.

### What is the purpose of the research?

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The aim of this study is to explore how participant's performance of simple movements affects the movement variability in the following conditions: a) following an image while not hearing a beat and while hearing a beat; and b) following a humanoid-robot while not hearing a beat and while hearing a beat.

### What will happen during the experiment?

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During the experiment you will be asked to wear two inertial sensors in your right hand and you will perform 10 repetitions for horizontal and vertical arm movements in six conditions:

- Condition 1. Following an image while NOT hearing a beat
- Condition 2. Following an image while hearing a slow beat rate
- Condition 3. Following an image while hearing a fast beat rate

(a 5 minutes break will be given at this point)

- Condition 4. Following a humanoid-robot while NOT hearing a beat
- Condition 5. Following a humanoid-robot while hearing a slow beat rate
- Condition 6. Following an image while hearing a fast beat rate.

## **What type of data will be collected during the experiment?**

Three types of data will be collected:

- i) Data from inertial sensors will be collected. Each inertial sensor has an accelerometer, magnetometer, gyroscope.
- ii) Audio from a microphone to record the movements of the humanoid-robot.
- iii) A video will be recorded for visualisation and demonstration purposes (let me know if you are uncomfortable with the video recording).

## **What happens to the data collected?**

The data will be analysed in order to explore how participant's performance of simple movements affects the movement variability in the previous six conditions of movement.

## **How Is Confidentiality Maintained in the experiment?**

The law called the Data Protection Act (1998) tells us how to keep your information secure.

Your data will be treated as confidential and you will be assigned a unique identifying code which will be used to identify your data. If you have decided to provide your name and email address, it will remain confidential and we will not give your details to anyone else. No other personal data will be recorded about participants (no ethnicity, address, telephone number, etc. )

## **What is the duration of the experiment?**

The estimated time for the study is between 40 to 45 minutes.

## **Where the experiment will be conducted?**

The experiment will be conducted in room N310 which is in third floor at Gisbert Kapp Building (G8), University of Birmingham.

## **Will the results of this research be published?**

Data collected will be used for conference and journal publications and the PhD thesis results.

## **Will be compensation for participating?**

You are invited to participate in this study but will receive no compensation.

## **Can I withdrawal from the experiment after given my consent?**

Yes, you can withdrawal from the experiment at any time after given your consent which might be either before the start of your experiment session, during the session, or after finishing the session. In case of withdrawal, all your data will be discarded and will not be used anywhere in the study.

## Contact Details

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If you have any questions about the project, you can contact Miguel by e-mail or telephone, using the details provided below:

Doctoral Researcher: Miguel P. Xochicale [[map479@bham.ac.uk](mailto:map479@bham.ac.uk)].  
Department: School of Electronic Electrical and Systems Engineering

Primary Supervisor: Professor Chirs Baber [[c.baber@bham.ac.uk](mailto:c.baber@bham.ac.uk)]  
Department: School of Electronic Electrical and Systems Engineering

Secondary Supervisor: Professor Martin Russell [[m.j.russell@bham.ac.uk](mailto:m.j.russell@bham.ac.uk)]  
Department: School of Electronic Electrical and Systems Engineering

### 1. Statement of understanding/consent \*

*Tick all that apply.*

☐ I confirm that I have read and understand the participant information online sheet for this study. I have had the opportunity to ask questions if necessary and have had these answered satisfactorily.

☐ I understand that I am able to withdraw from the experiment at any time without giving any reason. If I withdraw my data will be removed from the study and will be destroyed.

☐ I understand that my personal data will be processed for the purposes detailed above, in accordance with the Data Protection Act 1998.

☐ Based upon the above, I agree to take part in this study.

### 2. Your Name \*

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### 3. Email \*

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## 2. Antropometric Data

### 4. Participant Number (e.g. p11) \*

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### 5. What is your gender? \*

*Mark only one oval.*

☐ Male

☐ Female

### 6. What is your age in years? \*

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### 7. What is your handedness? \*

*Mark only one oval.*

☐ Left

☐ Right

**8. Have you received formal music training? \****Mark only one oval.*

- ☐ No
- ☐ Yes (less than 5 years)
- ☐ Yes (more than 5 years)

**9. What is your arm lenght in centimetres? \****Mark only one oval.*

- ☐ Less than 45
- ☐ 45
- ☐ 46
- ☐ 47
- ☐ 48
- ☐ 49
- ☐ 50
- ☐ 51
- ☐ 52
- ☐ 53
- ☐ 54
- ☐ 55
- ☐ 56
- ☐ 57
- ☐ 58
- ☐ 59
- ☐ 60
- ☐ More than 60

**10. What is your height in centimeters? \***

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**11. What is your weight in kilograms? \***

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