

HIT Lab NZ

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Attention and Distraction in Augmented Reality

Information Sheet for participants

Kia ora,

You are invited to participate in a research study on attention and distraction in Augmented Reality. This study is being conducted by Marko Ritter from the University of Canterbury | Te Whare Wānanga o Waitaha (UC). Other research team members include Stephan Lukosch (UC), Samara Morrison (UC). The study is being carried out as a requirement for a PhD Thesis and further supervised by external researchers Mark Billingham (University of Auckland), Christopher Erb (University of Auckland), and Arash Mahnan (Meta Inc). Meta Inc. has kindly provided sponsoring for this research.

What is the purpose of this research?

This research aims to investigate how Augmented Reality affects mental processing. I am interested in how attention is distributed between the digital and the real environment, and their impact on pedestrian safety.

Why have you received this invitation?

You are invited to participate in this research because you have responded to a request for participants.

Your participation is voluntary (your choice). If you decide not to participate, there are no consequences. You can also withdraw your participation at any point during the study without consequences. Your decision will not affect your relationship with me, the University of Canterbury or any member of the research team.

Who can participate?

Participants must be healthy and should not have had leg injuries in the last six months. Their eye sight must either be good or corrected with contact lenses. Unfortunately we cannot allow individuals that require glasses while wearing the AR headset, because glasses interfere with the eye tracking. All participants must be 18 years of age or older.

What is involved in participating?

If you choose to take part in this research, you will be asked to:

1. Meet the researcher at the Otakaro Building (Room 217) at the time you've chosen on the booking system.
2. Read through the information sheet and receive a short briefing by the researcher about what you'll be required to do for the study, if you're comfortable to proceed you'll sign the consent form and the study will begin.
3. You will be asked to wear a head mounted display and you will then be shown a short demonstration how to respond to the virtual task presented to you.
4. When you're satisfied that you understand the task you will be shown a walking course.
5. You will be asked to walk the circuit while solving the task rapidly. Your response times will be measured and recorded. Additionally, various bio-signals will be recorded, such as heart rate, your gait characteristics, and gaze data. After the trial is complete, you will be prompted to answer a questionnaire regarding your experience.
6. You will be asked to repeat step 5 for six more scenarios, for a total of roughly 500 metres.
7. The researcher will ask you regularly if you experience motion sickness. If you experience motion sickness, you can pause or stop the experiment at any time.
8. Once all scenarios have been completed, you will be asked to complete a survey about how you perceived the difficulty you faced.
9. Answer a questionnaire about your experience, a short demographic survey, and share your prior experience with augmented reality systems.
10. A series of interview questions about your experience will complete the data collection.

We estimate that your participation will take around 120 minutes.

Are there any potential benefits from taking part in this research?

A potential benefit is that participants will develop further understanding of safety implications of Augmented Reality.

The information and insights gathered will potentially save lives by better understanding inattention and how such cognitive phenomenon can be mitigated.

At the conclusion of the study I will provide you with a gift card voucher. You will get this inducement even if you withdraw from the study.

Are there any potential risks involved in this research?

Some interventions may cause high mental load or even distress. These will be brief with recovery time, and participants can withdraw if needed.

Data collected may reveal attentional issues, but all data will be anonymized to ensure confidentiality. Participants wearing a Head Mounted Display may experience motion or cyber sickness, though the risk is low due to normal walking and visible surroundings.

What if you change your mind during or after the study?

You are free to withdraw at any time. To do this, please let me know either during the study or after you have finished. I will remove any information you have provided up to that point from the data set if it is still possible. However, you always own the data, and can ask for it to be deleted at any point.

What will happen to the information you provide?

All data will be treated confidential. We will ensure that it will be impossible to identify you or link your identity with any information you provide.

We will store all study data in password-protected files on the University of Canterbury computer network or in lockable cabinets in lockable offices. Anonymised measurements from the study will also be published on osf.io (Open Science Foundation) to make it available to other researchers at the time of publication of the study. This may imply further usage of the data for further statistical processing and machine learning.

With your permission, answers you provide orally as part of the interview can be used as anonymized participant quotes in the research outputs. To transcribe the interview parts, we will use Microsoft Copilot as integrated in Office 365.

Marko Ritter will be responsible for making sure that your data is only used for the purposes mentioned in this information sheet.

Will the results of the study be published?

The results of this research will be published in a PhD thesis. This thesis will be available to the general public through the UC library. Results may be published in peer-reviewed, academic journals. Results will also be presented during conferences or seminars to wider professional and academic. You will not be identifiable in any publication. A summary of results will be sent to all participants who request a copy of these.

Who can you contact if you have any questions or concerns?

If you have any questions about the research, please contact:

- Marko Ritter (marko.ritter@pg.canterbury.ac.nz)
- Samara Morrison (samara.morrison@canterbury.ac.nz)
- Prof. Dr. Stephan Lukosch (stephan.lukosch@canterbury.ac.nz)

Questions should go to the researcher (Marko Ritter) and concerns to one of the collaborators (Samara Morrison, Stephan Lukosch).

This study has been reviewed and approved by the University of Canterbury Human Research Ethics Committee (HREC). If you have concerns or complaints about this research, please contact the Chair of the HREC at human-ethics@canterbury.ac.nz.

What happens next?

Please review the consent form. If you would like to participate, please sign and return the consent form to the researcher.