

Appendix A-1



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Information and consent form (Participant A)

CoMap: Exploring Collective Spatial Cognition during a Search and Rescue Simulation with Collaborative 3D Sketch Mapping

Participant (full name):

Conducting person (full name):

Contact project team: Sailin Zhong, Institute of Cartography and Geoinformation,
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Data Protection Officer ETH Zurich: Tomislav Mitar (tomislav.mitar@sl.ethz.ch)

We would like to ask you if you are willing to participate in our research project. Your participation is voluntary. Please read the text below carefully and ask the conducting person about anything you do not understand or would like to know.

What is investigated and how?

Search and Rescue (SAR) in urban areas and wilderness is a life-saving application that requires collective spatial cognition between a command team and a field search team. Sketch mapping is a simple but effective method to externalize human spatial understanding, and also a common technique for planning and decision-making in SAR. This study aims to investigate the communication behavior of paired participants when collaborative 3D sketch mapping tools are introduced to an SAR game. Furthermore, the outcome of this research will inspire the design of novel collaborative 3D sketch mapping tools.

Who can participate?

To participate in this study, you must be at least 18 years of age, have normal vision (contact lenses are allowed), and not have any type of color blindness or any acute/chronic physical/mental illness. In addition, you should have a high level of English language proficiency and an adequate level of knowledge in cartography or have participated in orienteering. No or slight knowledge of AR.

What am I supposed to do as a participant?

You will be asked to draw sketches while wearing AR glasses after watching a simulation of drone footage of a disaster site. While sketching the building, you will communicate via audio (and the sketches in one of the conditions) with another participant who's exploring this simulated disaster

site with VR. After you label the locations of the victims [and fire], you should communicate with the other participants to start searching for the victim and continue to update the victim [and fire] locations via audio (and the sketches in one of the conditions). Your team will be scored by the number of victims rescued and the time used to rescue them.

*The item in the [] is only applicable to study 1's consent form.

What are my rights during participation?

Your participation in this study is voluntary. You may withdraw your participation at any time without specifying reasons and without any disadvantages.

What risks and benefits can I expect?

We do not expect any high risks in participating in this study. You might experience some discomfort or eye fatigue when wearing the AR headset.

Will I be compensated for participating?

You will receive 35 Swiss Francs of cash as compensation for participating if you complete the whole study. The IP rights will belong exclusively to ETH.

What data is collected from me and how is it used?

In this study, we do not collect any personal data (e.g., names, place of residence, or email addresses) from you. The main data we collect is the sketches you create and your dialogues during the experiment. We also collect basic demographic data, questionnaires, and voice to understand the results better. The sketching procedure will be recorded by screen recording. However, they are fully anonymized, and there is no way to reveal your personal identity using the information. The conversations will be recorded using an audio recorder. The contents will be transcribed automatically via the Trint service (trint.com), which has been licensed to be used at ETH. The recordings will be deleted after transcription. Only the researchers involved in the study and the ETH Zurich Ethics Commission members may access the original data, where strict confidentiality will be observed at any time. The obtained data will be stored safely on the internal server of ETH Zurich.

The results of this study will be reported in a scientific journal or at a conference. The obtained data will not be made accessible to others.

What are my rights to my personal data?

We guarantee that the data protection laws (Federal Data Protection Act (FADP)) are compiled whenever applicable in collecting and processing personal data. Since strict confidentiality is promised and we do not have a way to reveal your identity based on the data collected, we cannot find out which data belongs to which person once the data collection is completed. Therefore, you will not be able to request information about the personal data that was collected from you. Please contact the person indicated above for further information.

Who funds this study?

This study is part of a Sinergia project (No. 202284) funded by the Swiss National Science Foundation (SNSF).

How am I insured?

Adverse health effects that are directly caused by the study and can be demonstrated to be attributable to fault on the part of the project team or ETH Zurich are covered by ETH's liability insurance. You are responsible for insuring yourself against any other adverse health effects that might occur, for instance, in connection with the trip to or from the place where the study is conducted.

Who reviewed this study?

This study was examined by the ETH Zurich Ethics Commission as proposal *EK-20XX-N-XX*.

Complaints office

The secretariat of the ETH Zurich Ethics Committee is available to help you with complaints in connection with your participation. Contact: *ethics@sl.ethz.ch* or 0041 44 632 85 72.

Consent Form

I, the participant, confirm by my signature that:

- I have read and understood the study information. My questions have been answered completely and to my satisfaction.
- I comply with the inclusion and exclusion criteria for participation described above. I am aware of the requirements and restrictions to be observed during the study.
- I have had enough time to decide about my participation.
- I participate in this study voluntarily and consent that my personal data be used as described above.
- I understand that I can stop participating at any moment.

I would like to be informed about the results of this study

- Yes, Name and Phone Number or Email:
- No

Full name of participant

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Place, Date

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Signature participant

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Place, Date

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Signature conducting person

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