

Participant Information Sheet for Participation in a Research Study
Free University of Bozen-Bolzano

Researcher(s): Prof. Angelika Peer, Full Professor
Prof. Reinhard Tschiesner, Associate Professor
Isabel Barradas, PhD student & Research Assistant

Study Title: *Dynamic models for emotion estimation from physiological signals*

1. WHAT IS THIS DOCUMENT?

This document is called a Participant Information Sheet. It will give you information about the study so you can make an informed decision about participation in this research. We encourage you to take some time to think this over and ask questions now and at any other time. If you decide to participate, you will be asked to sign a complementary consent form where you acknowledge that you have read and understood this document. You will be given a copy of both documents for your records.

2. WHY ARE WE DOING THIS RESEARCH STUDY?

Emotions play an important role in our daily life, since they influence how we think and behave. Our ability of recognizing emotions in others also helps us to communicate with other people. The emotion research field has recently started analysing the dynamic nature of emotions, but further studies are still required. In a previous work of the group, an attempt was made to model the dynamics of emotion intensity. In this study, we will extend this approach to consider both the intensity and the quality of emotions, as well as the dynamic changes of both. To accomplish this, we will need to collect physiological signals and record the emotional experience of participants. These physiological signals are: electroencephalogram, heart rate, galvanic skin response, and respiration rates. The development of such a dynamic model will not only contribute for a better understanding of the emotional processes but will also benefit several “real-world” applications (e.g., driving assistance technologies, mental health monitoring, therapy, and gaming).

3. WHO CAN PARTICIPATE IN THIS RESEARCH STUDY?

The participants taking part in this study must be adults (over 18 years of age) and able to give their consent. Participants suffering somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, or trauma are excluded, since we want to prevent worsening one’s health status as a consequence of this study. Please find more information about this in section 5.

4. WHERE WILL THIS RESEARCH STUDY TAKE PLACE AND HOW MANY PEOPLE WILL PARTICIPATE?

The study will take place at NOI TechPark, Via Alessandro Volta, 13, 39100 Bolzano BZ.

We expect to have among 20 to 30 participants.

5. WHAT WILL I BE ASKED TO DO AND HOW MUCH TIME WILL IT TAKE?

In a first step, you will be asked to fill a Brief Symptom Checklist (BSCL) and to answer some questions related to the presence of trauma. The BSCL is a self-report questionnaire to detect the presence and severity of somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. You will be assessed according to the presence of

trauma. In case of symptoms of any of these conditions, you will not be able to continue. This questionnaire will be filled online, and the researchers will only receive the automatically calculated indices and the contact details of participants who meet the selection criteria. Your answers to the individual questions of the questionnaire are not accessible to the researchers and are not stored. The link between name and indices will be destroyed at the moment of anonymization following the recording of experimental data or after 2 months should we not be able to find a date for the experiment. Should inclusion criteria not be fulfilled, the data entered into the online questionnaire will be deleted immediately without passing it further to researchers.

If you fulfill the conditions to participate in our study, you will be invited to come to our lab facilities at NOI TechPark (see section 4).

During the experiment, you will be looking at different pictures displayed on a screen in front of you, with the purpose of invoking emotions. These images show different objects, animals, persons or situations and have been categorized to be pleasant, neural, or unpleasant. Please also note that some of these images may include content considered objectionable, such as sexually explicit and violent pictures. If any of the media presented makes you feel too uncomfortable to continue with the study, you are free to withdraw immediately your participation. Also, if you feel any discomfort or concerns after viewing the images, even later when returning home or after some days, you are encouraged to contact Prof. Reinhard Tschiesner (email: reinhard.tschiesner@unibz.it; phone number: +39 0472 014293). He is informed about the ongoing study and can provide psychological assistance. In a serious emergency, remember that you can also call 112 for immediate assistance.

In an initial phase, you will be asked to fill a questionnaire to assess your emotional state. Also, we will show you a small set of pictures that are representative of all the emotions we are going to elicit during the experiment. This will help you to better understand if you wish to proceed with the study.

As addressed in section 2, your physiological signals will be recorded. For this purpose, the researcher will place a cap with electrodes on your head, and biosensors on your fingers, and chest, see figure below.



To make sure that the electrodes on your head will function properly, a little bit of gel (easy to wash out and dermatologically tested) will have to be placed between the electrodes and the scalp. At the end of

the experiment, the researcher will remove the electrodes and sensors again and should you wish to do so you will be guided to a shower room where you can remove reminders of the gel from your hair. Due to the Covid-19 situation, we kindly ask you to bring your own shampoo, towel, hairdryer and hairbrush with you.

While looking at the pictures, you will be rating each picture according to the emotions that the image is making you feel. There are no right or wrong answers, so simply respond as honestly as you can. You will view several trials of different pictures. While the picture is on the screen, please assess your emotion using a 2D rotational device (see figure above) in a dynamic manner. It is important that your eyes are directed towards the screen during the exhibition of the images. Try to look at the picture as much time as possible. Please **start your judgements already while the picture is on the screen** taking into consideration the actual evolution of the emotion, i.e. its intensity and quality changes that you feel. Continue with your judgement also when the picture disappeared from the screen.

The experiment is divided into 3 parts, described as follows:

1. The emotion quality is fixed over trials. At the beginning of each trial, move the knob to choose the most adequate label to describe the emotion quality that you are feeling and then move the translational slider to assess the intensity as it increases and decreases over time.
2. The emotion intensity is fixed over trials. At the beginning of each trial, adapt the intensity and then move the knob to assess the emotion quality as it changes over time.
3. Both, emotion quality and intensity can change freely. Adjust both the emotion quality and intensity as they increase and decrease or change over time.

Note that the closer to the centre, the less intense the emotion is you are feeling.

The order of the three aforementioned parts is randomized, so you will receive specific instructions before you start each of them.

At the end of the experiment, you will take a Self-Assessment Manikin test (SAM-test). This is a picture-oriented questionnaire developed to measure an emotional response. After this, the researcher will debrief you about the experiment and will answer to all the possible questions you may have. You will take a final SAM-test before being guided to the shower room to remove remainders of the gel and then leaving. This experiment should take approximately 2 hours to be completed.

6. WILL BEING IN THIS RESEARCH STUDY HELP ME IN ANY WAY?

You may not directly benefit from this research; however, your participation in the study contributes to the advancements of knowledge in the field of emotion research. This study aims to develop a dynamic model to recognize emotions based on physiological signals. In the future, such information can benefit human-system interaction in innovative technological systems as well as therapy.

7. WHAT ARE MY RISKS OF BEING IN THIS RESEARCH STUDY?

Since the stimuli include unpleasant images, they can cause you psychological discomfort (as mentioned in section 5). By means of our pre-screening procedure (see sections 3 and 5), we aim at reducing the risk of situations of extreme psychological discomfort by excluding participants at risk. Nonetheless, further measures will be taken to minimize your discomfort: we will present an initial set of representative images to aid you to decide if you want to continue with the study; we will end the experiment with neutral images to help you reaching a neutral state; and we will have a final moment of debriefing, where the researcher talks to you about the research study and the nature of the stimuli. It is important to emphasize also the existence of a counselling service that you can contact for extra assistance (see details in section 5). Participants are required to sit for around 90 minutes (each part will take around 30 minutes). During the experiment, it is important to remain immobile as much as possible, since your movements will affect the quality of the recorded signals.

8. HOW WILL MY PERSONAL INFORMATION BE PROTECTED?

Your privacy and confidentiality are important to us. The following procedures will be used to protect the confidentiality of your study records. In a first place, the researchers will only receive your indices and contact details if you meet the selection criteria. In this way, the researchers will only have access to the final indices of participants that can be included in the study and not individual answers. Thus, access to sensitive data is reduced significantly at pre-screening stage. The link between name and indices will be destroyed at the moment of anonymization following the recording of experimental data or after 2 months should we not be able to find a date for the experiment. Should inclusion criteria not be fulfilled, the data entered into the online questionnaire will be deleted immediately without passing it further to researchers.

Moreover, your data will be collected in anonymous form. Your anonymized physiological and meta-data will be initially stored on a dedicated Office 365 group folder with access rights restricted to the researchers directly involved in this study.

We further aim for publishing the anonymized data in a research repository in a second step. The final developed emotion model will be published in scientific publications and thus, made publicly available.

The signed consent documents will be stored securely following university rules.

9. WILL I BE GIVEN ANY MONEY OR OTHER COMPENSATION FOR BEING IN THIS RESEARCH STUDY?

You will not receive any payment.

10. WHO CAN I TALK TO IF I HAVE QUESTIONS?

Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. You may contact the researchers Isabel Barradas (email: isabel.barradas@unibz.it; phone number: +39 0471 017847) or Prof. Angelika Peer (email: angelika.peer@unibz.it; phone number: +39 0471 017766) if you have further questions also after the study.

Contact details for psychological support:

Prof. Reinhard Tschiesner (email: reinhard.tschiesner@unibz.it; phone number: +39 0472 014293).

11. WHAT HAPPENS IF I SAY YES, BUT I CHANGE MY MIND LATER?

If during the session you decide that you no longer wish to participate in this study, you can notify the researchers and you can stop participation and the data will be withdrawn immediately. Nonetheless, your data cannot be withdrawn once the data has been anonymized. All direct identifiers from your data will be destroyed after the session.

Thank you for reading this and considering taking part in the study. Do not hesitate to contact the researchers mentioned in question 10 for further information or clarification about this study.