

RESEARCH CONSENT FORM

Camera- and Audio-Based Inference of Autonomic Arousal during Human-Robot and Human-Human Spatial Interaction

DESCRIPTION: You are invited to participate in a research study that examines whether ordinary cameras and microphones can detect the body's small autonomic responses to frightening film scenes and to a person or a robot moving toward you. When another person or a robot approaches, your body responds with changes you do not have to think about — heart rate, skin moisture, pupil size, posture, breathing, and voice. The purpose of this study is to learn which of these responses can be predicted from video and audio alone.

During the visit you will wear several non-invasive sensors, which may include: finger electrodes and a hand or wrist unit measuring skin moisture, pulse and skin temperature; a chest strap, or a fitted sensor shirt that you put on in private, measuring heart rate and breathing; small adhesive electrodes on your chest, under your clothing, measuring heart and skin nerve activity; small adhesive electrodes on your brow and below one eye, measuring facial muscle activity; and eye-tracking glasses. Before electrodes are applied, the skin may be cleaned with an alcohol wipe or a mild skin-preparation gel. A camera will record video of you, and a microphone will record room audio during the session. A low-power radar sensor in the room may measure your breathing and heart rate from a distance, and other room sensors record temperature and humidity.

Every visit starts with a short calibration block including a few brief loud sounds (about 95–105 decibels for less than a second, comparable to a hand clap close to the ear) and a voluntary breath hold. You will then be assigned at random to one of three groups: (1) a staff member and then a robot move through the room near you in a set of predetermined ways; (2) you watch a horror film; or (3) both. If you are assigned to watch a film, it will be a commercially released horror film rated PG-13 or R. These films are chosen to be frightening. They may include disturbing or frightening images, sudden loud sounds ("jump scares"), and scenes of violence, blood and gore. Some contain flashing lights. You will not be shown sexual violence. Before the film starts, we will tell you its title and rating and give you a synopsis. You may ask for a PG-13 film instead of an R-rated film, or turn down a film for any reason and be offered a different one. We will usually show selected scenes lasting up to 50 minutes; if you prefer, you may watch the whole film instead. The film may play while a person or a robot is moving near you. At any time you may say "stop," and the film, the person or the robot will stop.

Because we are studying involuntary responses, a few small details about how individual trials are run will be explained at the end of the visit rather than at the start; telling you in advance would change the response we are trying to measure. Nothing that we withhold puts you at any additional risk. At the end of the visit, the study coordinator will explain everything and offer you the choice to withdraw your data with no penalty. Your data, including audio and video recordings, will be used by the research team in analysis. You may contact the research team at any time to withdraw your data from the study. Audio and video recordings will be deleted after 3 years. No identifying data will be disseminated.

TIME INVOLVEMENT: Your visit will take about 1 hour if you are assigned to the person and robot only, up to about 1.5 hours if you are assigned to watch a film only, and up to about 2 hours if you are assigned to both. If you choose to watch a whole film, your visit may take up to about 3 hours. You may take a break at any time.

RISKS AND BENEFITS: The risks associated with participation in this study are no greater than those ordinarily encountered in daily life. The most likely risks are brief startle and mild psychological discomfort, such as fear, unease or disgust, during the horror film and the approach trials. Some people find scenes in horror films disturbing, and you may feel uneasy for a short time afterward. The adhesive electrodes or skin-preparation gel may cause mild, temporary skin redness or irritation. A person or a robot may approach you more closely, more quickly, or in a manner different from what you were told to expect, and may behave in ways you find startling or uncomfortable. You may stop the film, end any trial, or end the whole session at any time. Study data will be stored securely, in compliance with Stanford University standards, minimizing the risk of confidentiality breach. There may be no personal benefit from your participation in the study, but the knowledge received may be of value to research on human-robot interaction and on nonverbal communication. We cannot and do not guarantee or promise that you will receive any benefits from this study.

IMPORTANT EXCLUSION CRITERIA: This experiment is not suitable for all persons. If you have certain conditions, you should not participate. If you wish to avoid triggering stimuli, such as being startled or scared like you would in a scary movie or haunted house, or if you do not want to watch a horror film, you should not participate.

Exclusion criteria: PTSD, anxiety and panic disorders, severe hearing impairment, hyperacusis or tinnitus, severe visual impairment, balance or mobility impairment, seizure disorders, allergy or sensitivity to medical adhesives.

If you have any doubts about your fitness to participate, do not participate or first talk to your doctor.

PAYMENTS: Participants will receive a \$25 gift card for participation in this study. No course credit is offered.

PARTICIPANT'S RIGHTS: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. The alternative is not to participate. You have the right to refuse any individual trial without giving a reason. Results of this research study may be presented at scientific or professional meetings or published in scientific journals. Your individual privacy will be maintained in all published and written data resulting from the study.

In accordance with scientific norms, the data from this study may be used or shared with other researchers for future research (after removing personally identifying information) without additional consent from you.

CONTACT INFORMATION:

Questions: If you have any questions, concerns or complaints about this research, its procedures, risks and benefits, contact the Protocol Director, Hae Young Noh, at noh@stanford.edu or 650-723-0263.

Independent Contact: If you are not satisfied with how this study is being conducted, or if you have any concerns, complaints, or general questions about the research or your rights as a participant, please contact the Stanford Institutional Review Board (IRB) to speak to someone independent of the research team at 650-723-2480 or toll free at 1-866-680-2906, or email at irbnonmed@stanford.edu.

Indicate Yes or No:

I give consent to be audio recorded during this study.

☐ Yes ☐ No

I give consent to be video recorded during this study:

☐ Yes ☐ No

I understand that the researchers may want to use a short portion of the video or audio recording for illustrative reasons in presentations of this work for scientific or educational purposes. I give my permission to do so provided that my name will not appear, that my face is blurred in any video used, and that my voice is altered in any audio used.

☐ Yes ☐ No

May we contact you about future studies that may be of interest to you?

☐ Yes ☐ No

The extra copy of this signed and dated consent form is for you to keep.

SIGNATURE _____ DATE _____

Print name of participant _____