UCL Computer Science Research Ethics Committee (CSREC)

Form Version: 1.2, 25th May 2022

Note to Applicants: It is important for you to include all relevant information about your research in this application form as your ethical approval will be based on this form. Therefore anything not included will not be part of any ethical approval.

Please ensure you have read the UCL guidance on risk levels before completing this application. In particular please note that currently the following are considered high-risk activities and will need review by the UCL main REC:

- Vulnerable groups
- Intrusive interventions (including MRI)
- Overseas clinical trials
- Sensitive topics
- Real risk of harm to either participants or researchers
- Scraping data
- Deception, involving actively misinforming or purposefully not fully informing participants what their participation entails or the true purpose of the research
- Covert methods; actively hiding the observation of, or other data collection from participant(s), where the participant(s) would otherwise have a reasonable expectation of privacy (applies both in person and online)

You are advised to read the Guidance for Applicants (https://www.ucl.ac.uk/research-ethics/guidance-applicants, https://www.ucl.ac.uk/research-ethics/ethical-approval/do-i-need-ucl-ethical-approval, and step 1 and 2 of https://www.ucl.ac.uk/research-ethics/ethical-approval/applying-ucl-rec) when completing this form.

Application For Ethical Review: Low Risk

Is this application for a continuation of a research project that already has ethical approval? *For example, a preliminary/pilot study has been completed and is this an application for a follow-up project?*	Yes ☒ No ☐
If yes, provide brief details (see guidelines) including the title and ethics id number for the previous study: This is a replacement for UCL REC project 4547_12, originally proposed in 2018, and amended four times. That project can no longer be renewed further. The group has successfully used that "blanket" proposal in dozens of studies over the past 4.5 years and has not had to report any issues during this period.	

Section A: Application details

1	**Title of Project**	Immersive Mixed Reality Experiments
2	**Proposed data collection start date**	**1/5/2023**
3	**Proposed data collection end date**	**30/4/2028**
4	**Project Ethics Identification Number *(this number will be assigned to you by the reviewer after first submission)***	**UCL/CSREC/R/16**
5	**Principal Investigator** **(*for student projects, your supervisor should be identified as the PI)**	Anthony Steed (Prof)
6	**Principal Investigator Position held**	Staff
7	**Principal Investigator Faculty/Department**	Computer Science
9	**Contact Details** UCL Email: Telephone:	A.Steed@ucl.ac.uk 02031087112 (x57112)
10	**Provide details of other Co-Investigators/Partners/Collaborators who will work on the project.** ***Note:*** *This includes those with access to the data such as transcribers.*	

Name: Dr David Swapp Position held: Research Fellow Faculty/Department: Computer Science Location (UCL/overseas/other UK institution): UCL Email: D.Swapp@ucl.ac.uk	Name: Dr Sebastian Friston Position held: Research Fellow Faculty/Department: Computer Science Location (UCL/overseas/other UK institution): UCL Email: sebastian.friston.12@ucl.ac.uk

Name: Dr Daniele Giunchi Position held: Research Fellow Faculty/Department: Computer Science Location (UCL/overseas/other UK institution): UCL Email: d.giunchi@ucl.ac.uk	Name: Mr Felix Thiel Position held: Research Assistant Faculty/Department: Computer Science Location (UCL/overseas/other UK institution): UCL Email: felix.thiel.18@ucl.ac.uk
Name: Dr David Walton Position held: Research Fellow Faculty/Department: Computer Science Location (UCL/overseas/other UK institution): UCL Email: david.walton.13@ucl.ac.uk	Name: Dr Ben Congdon Position held: Research Fellow Faculty/Department: Computer Science Location (UCL/overseas/other UK institution): UCL Email: ben.congdon.11@ucl.ac.uk

If you **do not know** the names of all collaborators, please write their roles in the research.

Masters or undergraduate students who elect to do their individual projects on virtual reality.

Masters or undergraduate students on the programme COMPGV07 Virtual Environments, who will run an experiment as part of this module's group coursework.

Doctoral students from UCL who will collaborate on studies with the investigators.

Research associates or research assistants who join the group to collaborate with one of the named investigators on studies.

11	**If the project is funded *(this includes non-monetary awards such as laboratory facilities, time donated in-kind, equipment lent, or data provided)***
Name of Funder	Various including Horizon 2020, EPSRC and UCL
Is the funding confirmed?	Yes, (Pipelines funded by EPSRC, CLIPE, RISE funded by H2020) and other studies underwritten by Prof. Steed's discretionary funds

12	**Name of Sponsor**
The Sponsor is the organisation taking responsibility for the project, which will usually be UCL. If the Sponsor is not UCL, please state the name of the sponsor. UCL	

13	**If this is a student project**
Name of Student	N/A
Faculty/Department	
Position Held (please tick)	☐ Master's project (if so, provide course title/number: _____) ☐ PhD ☐ staff led research project which may involve one or more students

Contact details	

Section B: Project details

The following questions relate to the objectives, methods, methodology and location of the study. Please ensure that you answer each question in lay language.

14	**Provide a *brief* (300 words max) background to the project, including its intended aims.**

An immersive user interface comprises a set of technologies that attempt to immerse the user in computer-generated or computer-mediated sensory information. Immersive user interfaces include virtual reality systems, augmented reality and other types of mixed reality system. A typical immersive user interface comprises audio and video displays that the user wears (e.g. head-mounted displays) or are placed near the user (e.g. the UCL CAVE system). The system will measure some movements and actions of the user through position tracking devices and interaction devices (e.g. joysticks, buttons, voice interaction, eye-tracking, etc.). Some immersive systems include other types of display such as haptic (force), vibro-tactile or olfactory stimulation. The intention of immersing the user is so that they can experience the sensory information from an egocentric, first person point of view. Such immersion leads to the user treating the sensory information in some ways as if it was real. Thus, their reaction is qualitatively different that experiencing similar computer generated or computer-mediated sensory information on non-immersive displays.

The overall aim of our research is to improve immersive user interfaces by understanding how engineering and content design decisions impact the effectiveness of the displays. There are several components to this: the quality of the physical display systems, the nature of the interaction devices that are used and the form of the content that is displayed. The issues examined can range from the latency (time taken in processing data) of system components through to the design of avatars (representations of human characters) within computer-generated or computer-mediated media.

15	**Methodology & Methods** (tick all that apply)

☒ Interviews*	☒ Collection/use of sensor or locational data
☐ Focus groups*	☐ Controlled Trial
☒ Questionnaires (including oral questions)*	☐ Intervention study (including changing environments)
☐ Action Research	☐ Systematic review
☒ Observation	☐ Secondary data analysis – ***(See Section D)***
Participant Observation	☐ Advisory/consultation groups
☐ Documentary analysis (including use of personal records)	☐ Other, give details:
☒ Audio/visual recordings (including photographs)	

**Attach copies to application (see below).*

16a	**Provide – <u>in lay person's language</u> - an overview of the project;** focusing on your methodology and including information on what data/samples will be taken (including a description of the topics/questions to be asked), how data collection will occur and what (if relevant) participants will be asked to do. This should include a justification for the methods chosen. **(500 words max)**

Specific projects will vary as noted below, if a step includes “will” then all procedures include it. If a step includes “may”, then procedures may or may not include this step.

Methodology:

1) On arrival at the laboratory participants will be given an information sheet to read and asked to give written consent. The experimenter will answer any questions and remind participants that they may withdraw at any point.
2) Participants will be assigned a *personal numerical code (PNC)*. A paper *Key* will be made that maps the personal numerical code to the personal information of the participant. All data recorded will only include the PNC
3) The participant will be asked to complete a pre-questionnaire. **They may be asked to complete a simulator sickness questionnaire (SSQ).**
4) The experimenters will provide the participants with instructions on using the equipment and the task to be completed.
5) The participants will complete a practice session of part or all of the task.
6) The participants will complete a trial session that involves the task.
7) The participants will complete a post-experience questionnaire.
8) The participants may complete the SSQ.
9) The participants may complete steps 5-8 multiple times with different configurations.
10) The experimenter will interview the participant.
11) The experimenter will debrief the participant and if the participant did not experience immersive virtual reality, they will be offered the chance to do this if this is possible.
12) The experimenter will pay the compensation. Some experiments pay a fixed fee. Other experiments include an element of competition or risk to motivate participants. The participant will sign a receipt for this money (to facilitate reclaim of the money).

Data collection:

1) A sheet, spreadsheet or other means will be used to retain the personal numerical code (usually a sequential code such as P1, P2, …), any different conditions of the experiments, time and location of the study and any annotations or observations made by the experimenter
2) Responses to pre-questionnaires will be stored. **These may include the SSQ.**
3) The equipment used in the study **may** record the following types of data:
    i. Position, orientation and acceleration tracking information from head and/or hands and/or other body parts;
    ii. Recordings from virtual reality simulation software that will allow reconstruction of the behaviour of the software throughout the participants’ experiences;
    iii. Eye-gaze behaviour;
    iv. Forces exerted by the participant on body-worn or grounded force-feedback devices or force sensors;

    Log files containing these data will also contain the PNC.

4) Responses to post-questionnaires will be stored. **These may include the SSQ.**
5) The participant will be interviewed. The experimenter may take written notes using the PNC. The interview may be audio recorded to facilitate transcription. In the case the interview is audio recorded, this recording will be held securely on the person of the experimenter, or locked in a cabinet in Prof. Steed’s, Dr. Ritschel’s or Dr. Swapp’s office. This recording will not be transmitted outside of the UK. To allow time for transcription, this recording will be deleted within 14 days of its creation. Transcriptions of recordings will be redacted of personally identifiable information and stored against the participant’s PNC to ensure anonymity.
6) The experimenter may record their observations during the experiment. These will normally be written notes using the PNC, though in some cases participant spoken responses may be audio recorded to facilitate transcription and interpretation later. In all cases where responses are audio recorded, the recording will be held securely on the person of the experimenter, or locked in one of the PI’s offices or

	other secure location. This recording will not be transmitted outside of the UK. To allow time for transcription, this recording will be deleted within 14 days of its creation. Transcriptions of recordings will be redacted of personally identifiable information and stored against the participant's PNC to ensure anonymity.
16b	**Attachments** If applicable, please attach a copy of any interview questions/workshop topic guides/questionnaires/test (such as psychometric), etc and state whether they are in final or draft form. Examples of questionnaires are attached. These are draft and would be varied for specific studies by minor changes to the wording or additional questions of a similar nature that are not personal in nature. Any significant variation (e.g. using a completely new questionnaire or test) would be submitted as an amendment. 1) In person pre-questionnaire (example) 2) In person post-questionnaire (example) 3) Interview questions (example)

17	**Please state which code of ethics (see Guidelines) will be adhered to for this research (for example, RESPECT or Menlo Report for general computing projects, Association of Internet Researchers or NESH for studies involving social media data or similar). Researchers will be expected to select an appropriate code of ethics to the work and have read it to inform the consideration of ethics issues below.**
RESPECT	

Location of Research	
18	**Please indicate where this research is taking place.** ☒ UK only (Skip to 'location of fieldwork') ☐ Overseas only ☐ UK & overseas
19	**If the research includes work outside the UK, is ethical approval in the host country (local ethical approval) required?** ***(See Guidelines.)*** Yes ☐ No ☐ **If no,** please explain why local ethical approval is not necessary. **If yes,** provide details below including whether the ethical approval has been received. **Note:** Full UCL ethical approval will not be granted until local ethical approval (if required) has been evidenced. N/A
20	**If you (or any members of your research team) are travelling overseas in person are there any concerns based on governmental travel advice (*www.fco.gov.uk)* for the region of travel?** Yes ☐ No ☐ **Note:** *Check www.fco.gov.uk and submit a travel insurance form to UCL Finance (see application guidelines for more details). This can be accessed here:* https://www.ucl.ac.uk/finance/secure/fin_acc/insurance.htm (You will need your UCL login details.)

21	**State the location(s) where the research will be conducted and data collected. For example public spaces, schools, private company, using online methods, postal mail or telephone communications.** Pre-questionnaires may be completed online by the participant at their convenience. The location would be unknown to us, but the online questionnaires should not take more than a few minutes. Virtual reality experiences would take place in one of the following locations: • Virtual reality lab, ground floor, Malet Place Engineering Building • Room B08, 169 Euston Road • Tracking space, UCL HereEast • Booked offices and meeting rooms when the spaces above are not available • External offices and meeting rooms, if required
22	**Does the research location require any additional permissions (e.g. obtaining access to schools, hospitals, private property, non-disclosure agreements, access to biodiversity permits (CBD), etc.)?** Yes ☐ No ☒ **If yes,** please state the permissions required.
23	**Have the above approvals been obtained?** Yes ☐ No ☐ **If yes,** please attach a copy of the approval correspondence. **If not,** confirm they will be obtained prior to data collection. Yes ☐ No ☐

Section C: Details of Participants

In this form 'participants' means human participants and their data (including sensor/locational data, observational notes/images, tissue and blood samples, as well as DNA).

24	**Does the project involve the recruitment of participants?**
Yes ☒	Complete all parts of this Section.
No ☐	Move to Section D.

Participant Details	
25	Approximate maximum number of participants required: Each experiment would have 10-100 subjects, expecting >1000 in total. Participants may attend solo, in pairs or in small groups. Approximate upper age limit: None Lower age limit: 18 Justification for the age range and sample size:

	Sample size is typical of between-subject or within-subject studies in our domain. The domain can be considered a part of human-computer interaction. The minimum age range is justified by needing adult participants. There is no maximum age, though participants would typically need to be mobile, have vision that can be corrected to normal without needing too strong eyewear and not have a significant age-related hearing loss.
Recruitment/Sampling	
26	Describe how potential participants will be recruited into the study. **Note:** This should include reference to how you will identify and approach participants. For example, will participants self-identify themselves by responding to an advert for the study or will you approach them directly (such as in person or via email)? Participants will be recruited by use of posters advertising the study, email, social media and web announcements on UCL managed lists or web pages, and emails to individuals known to the researchers who may have an interest in taking part in the study. Some studies use participant databases. Participants may be asked to email or phone one of the researchers to book slots, or this may be done through a web portal.
Informed Consent	
27a	Describe the process you will use when seeking to obtain consent. **Note:** This should include reference to what participants are being asked to consent to, such as whether their contribution will be identifiable/anonymous, limits to confidentiality and whether their data can be withdrawn at a later date. *(The UCL annotated template information sheet and consent form have been provided by the REC for your use - see step 5 of https://www.ucl.ac.uk/research-ethics/ethical-approval/applying-ucl-rec - and should be used as a starting point.)* Participants will sign up for the experiment by email, phone or completing an online form. This data is destroyed within seven days after the completion of data collection. A personal numerical code (PNC) will be assigned to a dataset from a given individual. Participants' data acquired during the experiments will be pseudonymised at the point of collection as is stored with the PNC. A separate key associating the PNC to an individual's personally-identifiable information (PII) (name and contact information as collected to sign up for the study) will be retained in a separate locked location from the dataset for the duration of the study, and then destroyed 7 days after of the completion of the data collection. This is so that if participants request that their data be withdrawn (a request that they can make up to seven days after completion of the data collection), then their complete dataset can be removed within 72 hours (normally 24 hours, but allowing for weekends). 7 days after the completion of the data collection, the participants' data is thus fully anonymised. The only exception to deletion of PII is if the participants agree to their email being retained for possible participation in a future study, in which case we will store the contact email only. Participants will be provided with an Information sheet to study before deciding to take part in on-site studies. They will be provided with plenty of time to discuss the study beforehand and to ask any questions. The experiment will be explained to the participants verbally, along with their right to withdraw. Participants will be asked the following questions: 1. If they have understood the information provided to them 2. If they understand they have the right to withdraw at any time without giving a reason

	3. If they consent to take part in the experiment Only when participants have signed a consent form assenting to the same, is consent considered to have been given.
27b	**Attachments** Please list them below: *Ensure that a copy of all recruitment documentation (recruitment emails/posters, information sheet/s, consent form/s) have been attached to the application.* Examples of the following have been attached: • Recruitment poster/email • Information sheet (annotated) • Consent example (annotated)
27c	If you are ***not*** intending to seek consent from participants, clarify why below: N/A

28	How will the results be disseminated (including communication of results with participants)? The research is anticipated to be communicated via published posters, abstract, conference publication or journal articles. The findings can only be analysed as when complete; thus no results will be communicated directly to the participants when they complete online or in-person trials. The participants will be told that published results will be available in the UCL open access repository between 3 and 24 months after the end of the study.

Section D: Accessing/Using Pre-collected Data

Access to data	
29	If you are using data or information held by third party, please explain how you will obtain this. You should confirm that the information has been obtained in accordance with the General Data Protection Regulation 2018.

Accessing pre-collected data	
30	**Does your study involve the use of previously collected data?** **No** ☒ Move to Section E. **Yes** ☐ Complete all parts of this Section. **Note:** If you ticked any boxes with an asterisk (*),ensure further details are provided in Section E: Ethical Issues.

31	**Name of dataset/s (if more than one, please specify each separately):**
32	**Owner of dataset/s (if applicable):**

33a	**Is the data in the public domain?** Yes ☐ No ☐ **If not,** do you have the owner's permission/license? Yes ☐ No* ☐ **Note**: publicly-visible data (e.g. on social media) is not necessarily in the public domain, it may be private data on public display and need particular handling methods. See UCL REC guidance: https://www.ucl.ac.uk/research-ethics/sites/research_ethics/files/using_twitter_in_research_v1.1_final.docx	
33b	**Is the data anonymised?** Yes ☐ No ☐ **If not:** i. Do you plan to anonymise the data? Yes ☐ No* ☐ ii. Do you plan to use individual level data? Yes* ☐ No ☐ iii. Will you be linking data to individuals? Yes* ☐ No ☐ **Note:** when considering anonymity in data, please take account of the fact that much online-derived data can be resolved back to its identifiable originator through the content: removing the metadata (e.g. user id/handle) does not make the data anonymous.	
33c	**Please explain the steps you have taken to establish the ethical provenance of the data (e.g. checking information given to data subjects prior to collection, ethics approvals granted for the collection, terms/conditions relied on, GDPR notices provided on collection etc). Where the provenance is unclear, please address this in box 37.**	
34	Is the data sensitive?	Yes* ☐ No ☐
35	Will you be conducting analysis within the remit it was originally collected for? **Note:** For social media and similar data, when considering the original "remit" take care to consider data subjects' expectations as well as their agreement to terms e.g. per concepts of Nissenbaum contextual integrity (see https://en.wikipedia.org/wiki/Contextual_integrity) and considering evidence of varied expectation in this space (see Fiesler and Proferes, "Participant" Perceptions of Twitter Research Ethics, Social Media and Society, 2018 https://journals.sagepub.com/doi/10.1177/2056305118763366)	Yes ☐ No* ☐
36	If not, was consent gained from participants for subsequent/future analysis?	Yes ☐ No* ☐

Section E: Ethical Issues

Ethical Issues

37	Please address clearly any ethical issues that may arise in the course of this research and how they will be addressed. Further information and advice can be found in the guidelines. Participants **may** engage in a number of tasks. While they do not receive any specific feedback about their performance on their tasks, they may have personal expectations about their performance and become frustrated if they do not feel they are meeting them. It will be made clear to participants that it is the system being tested and not them. In some experiments, there may be an element of competition or risk to motivate participants. This would be clearly defined risk or competition (e.g. number of correct questions on a quiz), but we would be clear that we are not assessing personal performance. Participants **may** meet one or more other participants within the software during the trials. This may be uncomfortable for them. This will be mentioned in the adverts, online information and during the application's introduction. Participants may stop the application at any time if they feel uncomfortable. Participants will not be informed of the identities of the other participants and it will not be possible to infer them from the system. The virtual environments will be comfortable, ensured by meeting the highest performance requirements possible for the VR systems they are experienced within. However, simulator sickness is always possible in VR. Participants will be told they may stop at any time. If it appears the participants will not be able to complete the task in a reasonable time (e.g. they are lost, confused, or are having trouble with the technique) the investigator will abort the trial to minimise exposure to VR, and thus the potential for simulator sickness to occur. Participants will be told to inform the investigator immediately if they begin to feel unwell. If they do so, the investigator will terminate the experiment. Before any technique is trialled, senior investigators with VR expertise will test all techniques to ensure they achieve an acceptable level of comfort. After the experiment, we will debrief the participants and answer any questions about the systems we used. If the participants took part in an experimental condition that did not involve an immersive system (e.g. a head-mounted display) we may offer to give them a demonstration of this technology (this may not always be possible due to logistics and location of the study). We will tell participants that if they do not wish their data to be included in the study they must request this with seven days.

Risks & Benefits	
38	Please state any *benefits* to participants in taking part in the study (this includes feedback, access to services or incentives), Participants will normally get to experience high-quality immersive systems either because it is part of the experimental conditions they attend, or because we make the offer to show them as part of debriefing (see also 37). This may be a novel experience for them. They may also be interested in the debrief about what aspects of virtual reality we are studying.
39	Do you intend to offer incentives or compensation, including access to free services)? Yes ☒ No ☐ **If yes,** specify the amount to be paid and/or service to be offered **as well as a justification for this**. As a standard we will offer participants £10-15 per hour compensation, with a minimum of £5. This is to compensate them for the time taken and travel to the laboratory. Some experiments pay a fixed fee. Some experiments have a variable fee in that range per hour

	that depends on an element of competition or risk. Competition or risk is considered an effective method of motivating participants to focus on the task. For example, in experiments in mixed reality, we have sometimes found that participants like to explore the environment rather than focus on the task. Alternatively, if the task is repetitive, some competition or risk might prevent participants getting distracted because they are bored. An example of a competitive experimental design would be when compensation is related to the number of correct answers to a quiz, where a low score would get the minimum payment (e.g. £10 per hour pro rata), and a high score would get the maximum payment (e.g. £15 per hour pro rata). Participants would know how the compensation will be calculated. A final alternative is that a study may offer a lottery prize. This is common if the study is short. Participants would still know the expected prizes and target number of participants. Expectation would still be that on average participants would earn £10-15 per hour.
40	Please state any *risks* to participants and how these risks will be managed. Simulator sickness is always possible in immersive displays. Participants will be told they may stop at any time. If it appears the participants will not be able to complete the task in a reasonable time (e.g. they are lost or confused, or are having trouble with the technique) the investigator will abort the trial to minimise exposure to VR, and thus the potential for simulator sickness to occur. Before any technique is trialled, senior investigators with VR expertise will test all techniques to ensure they achieve an acceptable level of comfort. We will inform the volunteers that they cannot participate if they have previously suffered an epileptic episode, if they have any type of colour blindness or if they have consumed alcohol within the last 6 hours before the sessions. The main risks are that either we would trigger an epileptic episode, or that the participants would be more susceptible to simulator sickness. It is general practice in our field to advise participants not to operate heavy machinery, including driving, for two hours after a virtual reality experience. This is mentioned on the information sheet. The risk is that while participants may not report simulator sickness symptoms, there is some evidence that there are unconscious pre-cursors which include disorientation or that symptoms might develop after exposure. This risk is only hypothetical and there are, to our knowledge at the time of submission, no reported incidents of this nature anywhere in the world. Risk assessments have been completed or will be completed for all sets of equipment and laboratory settings. See risk assessment RA019309/1 for a generic risk assessment of virtual reality equipment. On installation of new equipment or reconfiguration of laboratories, we would re-apply.
41	Please state any *risks* to you or your research team and how these risks will be managed. We do not anticipate any risks to the research team except the presence of strangers in the laboratory. We consider this to have a very low risk of occurrence and low severity. The laboratories are in buildings with a UCL security presence nearby and where access is via a UCL ID card. We would require experiments to be run when there are colleagues in nearby offices or laboratories, and the experimenter would have for those colleagues' phone numbers as well as the phone numbers for the investigators in case of difficulties. We do not consider it necessary to have more than one experimenter in the space, and indeed this might be intimidating to participants.

Section F: Appropriate Safeguards, Data Storage & Security

Please ensure that you answer each question and include all hard and electronic data.

42	**Will the research involve the collection and/or use of personal data (this includes publicly available data that is identifiable e.g. Tweet contents, Twitter names etc)?** Yes ☒ No ☐ ***Personal data*** *is data which relates to a living individual who can be identified from that data OR from the data and other information that is either currently held, or will be held by the data controller (the researcher).* *This includes:* – *any expression of opinion about the individual and any intentions of the data controller or any other person toward the individual.* – *sensor, location or visual data which may reveal information that enables the identification of a face, address, etc (some postcodes cover only one property).* – *combinations of data which may reveal identifiable data, such as names, email/postal addresses, date of birth, ethnicity, descriptions of health diagnosis or conditions, computer IP address (if relating to a device with a single user).*
43	**Is the research collecting or using** – special category data as defined by the General Data Protection Regulation and/or – data which might be considered sensitive in some countries, cultures or contexts. **If yes,** state whether explicit consent will be sought for its use and what data management measures are in place to adequately manage and protect the data. No

44	**All research projects using personal data must be registered with Legal Services before the data is collected, please provide the Data Protection Registration Number:** Note that high-risk data processing requires a DPIA. All processing of personal data requires a privacy notice (either individual under Article 13, or general, under Article 14.5(b) when supported by a DPIA). **Note:** High-risk data processing may arise in projects involving AI, large-scale profiling, biometrics, genetic data, combining personal data from multiple sources, tracking behaviour or location, and invisible processing (which includes reuse of publicly available data). For the full list of applications and criteria, see this page: https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/data-protection-impact-assessments-dpias/examples-of-processing-likely-to-result-in-high-risk/ If you do not have a registration number from Legal Services, please clarify why not: Z6364106/2018/05/137

During the project *(including the write up and dissemination period)*

45	**State what types of data will be generated from this project** (i.e. transcripts, videos, photos, audio tapes, field notes, etc). (1) Consent Forms (signed by participant, but not including personal numerical code). Stored on paper. (2) Email and/or phone call communications with participants and results of screening questionnaires (not including personal numerical code). Stored digitally. (3) Anonymised* performance metrics. Stored digitally. (4) Anonymised* log files from sensors and trackers. Stored digitally. (5) Anonymised* SSQ responses. Stored on paper or digitally. (6) Anonymised* questionnaire responses. Stored on paper or digitally. (7) Anonymised* transcriptions of interviews and written observation. Stored on paper or digitally. (8) A Key that maps personal information to personal number code. Stored on paper. (9) Form confirming receipt of compensation (signed by participant, but not including personal numerical code). Stored on paper. (10) Audio recordings of participant spoken responses during experiment trials and post-experiment interviews to facilitate the creation of (7). These audio recordings will be stored securely and deleted within 14 days of creation. Stored digitally. *Note that items (3-7) are pseudonymised during data collection. 7 days after the end of data collection, on destruction of (8), (3-7) are anonymised. **How will data be stored, including where and for how long?** This includes all hard copy and electronic data on laptops, share drives, usb/mobile devices. Note that the Key that maps personal information to personal number code (8) will be destroyed seven days after data collection is complete. After this point, experimental data (3-7) are anonymised. Consent Forms (1) will be locked in a cabinet in one of the PI's offices. They will be destroyed one year after of the end of data collection. Email and/or phone call communications with participants (2) will be deleted within seven days of the end of the data collection period. They will normally be stored on college phone or email services. If a personal mobile phone is used for logistical arrangements, the experimenter will delete all records from this device. If participants agree to have their details stored for future studies (Consent Form, last question), we will retain the email address only. If participants request a copy of the report on the study (Consent Form, Q13), we retain the email address only. We will not store the email address if they do not agree to one or other of these. The form that participants sign to indicate that they received compensation (9) will be submitted to UCL finance as part of an expenses claim. UCL finance would be responsible for destroying these digital records. We would destroy the paper form once the digital version had been submitted to UCL finance. Publication and/or funding may require that anonymous data (3-7) may be archived. If this is required, then we will follow best practice using the publication's archive or UCL library services. Local copies of data (3-7) will be stored on secure network drives in the department, on encrypted local disks or encrypted portable storage. Some examples of summative data (3-7) may appear in published papers. Participants will be not identifiable in this data. Any publication will be archived in UCL's open access repository. **Who will have access to the data, including advisory groups and during transcription?** Only those identified in Q10 and the PI will have access to data (1,3-7). During data collection (2) and (8,9) will be available to those identified in Q10 and the PI. (2) and (8) will be destroyed within seven days. (9) Will be lodged with UCL finance and digital copies would be accessible to persons authorised by UCL finance. We would destroy the

	paper copy once the digital version was submitted to UCL finance. Transcription may involve use of secure machine translation services, from UCL-approved suppliers, or where there is no risk of non-compliance with GDPR and Data Protection legislation.
46	**Do you confirm that all personal data will be stored and processed in compliance with the General Data Protection Regulation (GDPR 2018).** Yes ☒ No ☐ **If not,** please clarify why.
47	**Will personal data be processed or be sent outside of the European Economic Area (EEA)?*** Yes ☐ No ☒ **If yes,** please confirm that there are adequate levels of protection in compliance with the GDPR 2018 and state what the arrangements are below.

After the project	
48	**What data will be stored and how will you keep it secure?** Consent Forms (1) will locked in a cabinet in one of the PI's offices. The data identified as (3-7) in Q45 will be stored on secure network drives in the department. UCL finance will be responsible for digital copies of (9). We assume that their service is secure. We would destroy paper copies of (9) once digital copies were lodged with UCL finance. **Where will the data be stored and who will have access?** Consent Forms (1) will locked in a cabinet in one of the PI's offices. Only the PI responsible will have direct access. The data identified as (3-7) in Q45 will be stored on secure network drives in the department. Only those identified in Q10 and the PI will have access to data (3-7). UCL finance will be responsible for digital copies of (9). We would destroy paper copies of (9) once digital copies were lodged with UCL finance. **Will the data be securely deleted?** Yes ☒ No ☐ **If yes,** please state when this will occur: Consent forms (1) will be destroyed one year after of the end of data collection Experimental data (3-7) will be kept for a minimum of ten years after the completion of the study or ten years after the most recent request for access to the data by a 3rd party. This follows the UKRI policy for data retention, and we will follow that it if is updated. https://www.ukri.org/about-us/epsrc/our-policies-and-standards/policy-framework-on-research-data/expectations/

49	**Will the data be archived for use by other researchers?** Yes ☒ No ☐ **If yes,** please provide further details including whether researchers outside the European Economic Area will be given access. Publication and/or funding may require that anonymous data (3-7) be archived. If this is required, then we will follow best practice using the publication's archive or UCL library services. Researchers worldwide would then have access.

Section G: Declaration to be Signed by the Principal Researcher **I confirm that the information in this form is accurate to the best of my knowledge.**	
For staff project: Signature	
Date	10/11/2022
For student project: **I have met with and advised the student on the ethical aspects of this project design.**	
Signature	
Date:	

Adapted by CSREC, 24th May 2019