Dear Ethics reviewer,

Please find attached a new ethics application from the TRANSITION project team that is a replication of a previously approved application from our lab (PSC-564). The only modifications have been in the research dates, the recruitment strategy and payment, and in the instructions. Where modifications/adjustments have been made the text is highlighted in yellow.

The Principal Investigator of this project is the primary academic listed in section A3 (Richard Wilkie), so he has signed off the form as both the PI and the Supervisor in Part D: declaration.

Thanks,

Callum & Richard

UNIVERSITY OF LEEDS RESEARCH ETHICS COMMITTEE APPLICATION FORM [1]

Please read each question carefully, taking note of instructions and completing all parts. If a question is not applicable please indicate so. The superscripted numbers (eg[8]) refer to sections of the guidance notes, available at http://ris.leeds.ac.uk/uolethicsapplication. Where a question asks for information which you have previously provided in answer to another question, please just refer to your earlier answer rather than repeating information. Research ethics training courses: http://www.sddu.leeds.ac.uk/research-innovation/research-ethics-training-and-guidance

To help us process your application enter the following reference numbers, if known and if applicable:

Ethics reference number:	
Student number and/ or grant reference:	

PART A: Summary

A.1 Which Faculty Research Ethics Committee would you like to consider this application?[2]

- ☐ Arts, Humanities and Cultures (PVAR)
- ☐ Biological Sciences (BIOSCI)
- ☐ ESSL/ Environment/ LUBS (AREA)
- ☐ MaPS and Engineering (MEEC)
- ☐ Medicine and Health (Please specify a subcommittee):
  - ☐ School of Dentistry (DREC)
  - ☐ School of Healthcare (SHREC)
  - ☐ School of Medicine (SoMREC)
  - ☑ School of Psychology (SoPREC)

A.2 Title of the research[3]

Investigating the impact of cognitive load on automated driving (rerun)

A.3 Principal investigator's contact details[4]	
Name *(Title, first name, surname)*	Prof Richard Wilkie
Position	Professor
Department/ School/ Institute	School of Psychology
Faculty	Medicine and Health
Work address *(including postcode)*	School of Psychology, University of Leeds, Leeds, LS2 9JT
Telephone number	+44(0)113 343 6681
University of Leeds email address	r.m.wilkie@leeds.ac.uk

A.4 Purpose of the research:[5] (Tick as appropriate)

- [x] Research
- [ ] Educational qualification: ***Please specify:***
- [ ] Educational Research & Evaluation[6]
- [ ] Medical Audit or Health Service Evaluation[7]
- [ ] Other

A.5 Select from the list below to describe your research: (You may select more than one)

- [x] Research on or with human participants
- [ ] Research which has potential adverse environmental impact.[8] ***If yes, please give details:***
- [x] Research working with data of human participants
  - [ ] New data collected by qualitative methods
  - [x] New data collected by quantitative methods
  - [ ] New data collected from observing individuals or populations
  - [ ] Routinely collected data or secondary data
  - [ ] Research working with aggregated or population data
  - [ ] Research using already published data or data in the public domain
- [ ] Research working with human tissue samples (*Please inform the relevant Persons Designate if the research will involve human tissue)*[9]

A.6 Will the research involve NHS staff recruited as potential research participants (by virtue of their professional role) or NHS premises/ facilities?

- [ ] Yes
- [x] No

If yes, ethical approval must be sought from the University of Leeds. Note that approval from the NHS Health Research Authority may also be needed, please contact FMHUniEthics@leeds.ac.uk for advice.

A.7 Will the research involve any of the following:[10] (You may select more than one)

If your project is classified as research rather than service evaluation or audit and involves any of the following an application must be made to the NHS Health Research Authority via IRAS www.myresearchproject.org.uk as NHS ethics approval will be required. ***There is no need to complete any more of this form****. Further information is available at http://ris.leeds.ac.uk/NHSethicalreview and at http://ris.leeds.ac.uk/HRAapproval. You may also contact* ***governance-ethics@leeds.ac.uk*** *for advice.*

- ☐ Patients and users of the NHS (including NHS patients treated in the private sector)[11]
- ☐ Individuals identified as potential participants because of their status as relatives or carers of patients and users of the NHS
- ☐ Research involving adults in Scotland, Wales or England who lack the capacity to consent for themselves[12]
- ☐ A prison or a young offender institution in England and Wales (and is health related)[14]
- ☐ Clinical trial of a medicinal product or medical device[15]
- ☐ Access to data, organs or other bodily material of past and present NHS patients[9]
- ☐ Use of human tissue (including non-NHS sources) where the collection is not covered by a Human Tissue Authority licence[9]
- ☐ Foetal material and IVF involving NHS patients
- ☐ The recently deceased under NHS care
- ☑ None of the above

You must inform the Research Ethics Administrator of your NHS REC reference and approval date once approval has been obtained.

The HRA decision tool to help determine the type of approval required is available at http://www.hra-decisiontools.org.uk/ethics. If the University of Leeds is not the Lead Institution, or approval has been granted elsewhere (e.g. NHS) then you should contact the local Research Ethics Committee for guidance. The UoL Ethics Committee needs to be assured that any relevant local ethical issues have been addressed.

A.8 Will the participants be from any of the following groups? (Tick as appropriate)

- ☐ Children under 16[16] ***Specify age group:*** _____
- ☐ Adults with learning disabilities[12]
- ☐ Adults with other forms of mental incapacity or mental illness
- ☐ Adults in emergency situations
- ☐ Prisoners or young offenders[14]
- ☐ Those who could be considered to have a particularly dependent relationship with the investigator, eg members of staff, students[17]
- ☐ Other vulnerable groups
- ☑ No participants from any of the above groups

Please justify the inclusion of the above groups, explaining why the research cannot be conducted on non-vulnerable groups.

It is the researcher's responsibility to check whether a DBS check (or equivalent) is required and to obtain one if it is needed. See also http://www.homeoffice.gov.uk/agencies-public-bodies/dbs and http://store.leeds.ac.uk/browse/extra_info.asp?modid=1&prodid=2162&deptid=34&compid=1&prodvarid=0&catid=243.

A.9 Give a short summary of the research[18]

*This section must be completed in **language comprehensible to the lay person**. Do not simply reproduce or refer to the protocol, although the protocol can also be submitted to provide any technical information that you think the ethics committee may require. This section should cover the main parts of the proposal.*

When not in control of a vehicle (i.e. during automation), drivers tend to engage in non-driving related tasks (Jamson et al., 2012). Such tasks induce cognitive load, which may affect a driver's ability to safely and smoothly resume control of the vehicle. The evidence of how cognitive load affects driving is mixed, with some studies reporting *positive* effects of cognitive load on some aspects of driving performance (such as smoothness, or time spent looking at the road ahead), and others reporting *negative* effects on steering position or response time (for a review see Engstrom et al., 2017). However, much of the research has been conducted in fairly uncontrolled "real-world" settings. This research aims to investigate whether cognitive load has an impact on steering and gaze behaviours during a highly controlled transition between automated and manually controlled driving.

A.10 What are the main ethical issues with the research and how will these be addressed?[19]
Indicate any issues on which you would welcome advice from the ethics committee.

1. **Informed consent:** Participants will read an information sheet about the study and be given the opportunity to ask any questions. Willing participants will complete and sign an informed consent form before participation. Participants will be informed that they can withhold their data from any analyses/publication by the primary researchers and their data will be erased.
2. **Right to withdraw:** All participants have the right to withdraw from the experiment at any time. We highlight this both in the attached information sheet, and verbally to make sure this is absolutely clear that participants can inform the researcher to be terminate the testing session at any time. Participants will also be provided with contact details of the researchers should they wish to withdraw their data from the study later on.
3. **Confidentiality:** Participants will be reminded before the experiment that all data will be kept strictly confidential and any individual data in write-ups/publications will be referred to by code-name only.

PART B: About the research team

B.1 To be completed by students only[20]	
Qualification working towards (eg Masters, PhD)	N/A
Supervisor's name (Title, first name, surname)	
Department/ School/ Institute	
Faculty	
Work address (including postcode)	
Supervisor's telephone number	
Supervisor's email address	
Module name and number (if applicable)	

B.2 Other members of the research team (eg co-investigators, co-supervisors) [21]	
Name *(Title, first name, surname)*	Dr. Callum Mole
Position	Research Fellow
Department/ School/ Institute	School of Psychology
Faculty	Medicine and Health
Work address *(including postcode)*	School of Psychology, University of Leeds, LS2 9JT
Telephone number	+44 (0) 113 343 9841
Email address	C.D.Mole@leeds.ac.uk

Name (Title, first name, surname)	Dr. Jami Pekkanen
Position	Research Fellow
Department/ School/ Institute	School of Psychology
Faculty	Medicine and Health
Work address (including postcode)	School of Psychology, University of Leeds, LS2 9JT
Telephone number	+44 (0) 113 343 9841
Email address	j.j.o.pekkanen@leeds.ac.uk
Name (Title, first name, surname)	Mr. William Sheppard
Position	Research assistant
Department/ School/ Institute	School of Psychology
Faculty	Medicine and Health
Work address (including postcode)	School of Psychology, University of Leeds, LS2 9JT
Telephone number	+44 (0) 113 343 9841
Email address	cn13ws@leeds.ac.uk
Name (Title, first name, surname)	
Position	
Department/ School/ Institute	
Faculty	
Work address (including postcode)	
Telephone number	
Email address	

Part C: The research

C.1 What are the aims of the study?[22] (Must be in language comprehensible to a lay person.)

To investigate the effects of cognitive load on steering performance and gaze behaviours during the manual takeover of a simulated vehicle.

C.2 Describe the design of the research. Qualitative methods as well as quantitative methods should be included. (Must be in language comprehensible to a lay person.)

It is important that the study can provide information about the aims that it intends to address. If a study cannot answer the questions/ add to the knowledge base that it intends to, due to the way that it is designed, then wasting participants' time could be an ethical issue.

Participants will be asked to sit in a simulated automated vehicle moving along the centre of a computer generated road, and to regain control of the vehicle upon an auditory prompt. Virtual environments will be programmed using specialist software. Varying conditions will include the presence/absence of a cognitive load task. We will record gaze behaviour using an eye-tracker and steering behaviours through road position and steering wheel angle recorded at 60 Hz. This design will allow us to establish whether cognitive load affects steering and gaze behaviours during unconstrained gaze conditions, then assess the extent any steering behaviours are due to cognitive load induced changes in gaze by constraining gaze (and comparing steering behaviours across constrained and unconstrained conditions).

C.3 What will participants be asked to do in the study?[23] *(e.g. number of visits, time, travel required, interviews)*

The experiment will be completed in one visit. The participants will first read the study information sheet (attached) and be given the opportunity to ask any questions they may have about the study. Once all questions have been answered, they will sign in informed consent form (attached), indicating they wish to proceed with the study. Participants will be asked to fill out a demographic questionnaire about their previous driving experience and complete a short survey (attached). A short practice session will familiarise the participants with simulator dynamics. Participants will be asked to complete the experiment and then will be fully debriefed afterwards (attached). Participants will be able to take breaks when needed and have the opportunity to end the experiment at any point if they wish to. The whole process will take less than an hour.

C.4 Does the research involve an international collaborator or research conducted overseas:[24]
(Tick as appropriate)

☐ Yes ☑ No

If yes, describe any ethical review procedures that you will need to comply with in that country:

Describe the measures you have taken to comply with these:

Include copies of any ethical approval letters/ certificates with your application.

C.5 Proposed study dates and duration

Research start date (DD/MM/YY): 08/07/2019__ Research end date (DD/MM/YY): __01/10/2019__

Fieldwork start date (DD/MM/YY): _____N/A_____ Fieldwork end date (DD/MM/YY): _____ N/A _____

C.6. Where will the research be undertaken? (i.e. in the street, on UoL premises, in schools)[25]

In the Driving simulator within School of Psychology at University of Leeds (as per SOP).

RECRUITMENT & CONSENT PROCESSES

How participants are recruited is important to ensure that they are not induced or coerced into participation. The way participants are identified may have a bearing on whether the results can be generalised. Explain each point and give details for subgroups separately if appropriate.

C.7 How will potential participants in the study be:

(i) identified?

We will test young adults of 18-50. Adults over 50 years will not be tested due to a potential increase in risk of simulator sickness.

(ii) approached?

Participants will be approached if they have registered an interest in participating in research via the University of Leeds mailing list.

(iii) recruited?[26]

Participants will volunteer in response to the above methods, and be paid £10 for their time (approx. 1 hour).

C.8 Will you be excluding any groups of people, and if so what is the rationale for that?[27]

Excluding certain groups of people, intentionally or unintentionally may be unethical in some circumstances. It may be wholly appropriate to exclude groups of people in other cases

Participants will be excluded if they are neurologically impaired individuals as it cannot be assured that the observed motor behaviour will be a result of experimental manipulations. Those with epilepsy or motion sickness will also have to excluded due to simulator related illness. Participants must have a valid driving license and have normal or corrected-to-normal vision for the eye-tracking software (preferably contact lenses). As the switch from automated to manual driving is signaled via an auditory tone, those who are deaf and/or hard of hearing will also have to be excluded from this study.

C.9 How many participants will be recruited and how was the number decided upon?[28]

It is important to ensure that enough participants are recruited to be able to answer the aims of the research.

20 participants will be recruited. Previous studies using driving simulators have been adequately powered at 15 participants. With the inclusion of a cognitive task, there will be an increase in variation, and the increase in participants accounts for this.

Remember to include all advertising material (posters, emails etc.) as part of your application

C10 Will the research involve any element of deception?[29]

If yes, please describe why this is necessary and whether participants will be informed at the end of the study.

No.

C.11 Will informed consent be obtained from the research participants?[30]

☑ Yes ☐ No

If yes, give details of how it will be done. Give details of any particular steps to provide information (in addition to a written information sheet) e.g. videos, interactive material. If you are not going to be obtaining informed consent you will need to justify this.

Participants will be asked to read the study information sheet before signing their consent to take part. The information sheet details exactly what the study involves and explains that participants are free to withdraw from the study at any time with consequence. Participants will also be given the opportunity to ask questions before agreeing to participate and throughout the procedure itself.

If ***participants are to be recruited from any of potentially vulnerable groups, give details of extra steps taken to assure their protection. Describe any arrangements to be made for obtaining consent from a legal representative.***

Copies of any written consent form, written information and all other explanatory material should accompany this application*. The information sheet should make explicit that participants can withdraw from the research at any time, if the research design permits. Remember to use meaningful file names and version control to make it easier to keep track of your documents.*
Sample information sheets and consent forms are available from the University ethical review webpage at http://ris.leeds.ac.uk/InvolvingResearchParticipants*.*

C.12 Describe whether participants will be able to withdraw from the study, and up to what point (eg if data is to be anonymised). If withdrawal is not possible, explain why not.
Any limits to withdrawal, eg once the results have been written up or published, should be made clear to participants in advance, preferably by specifying a date after which withdrawal would not be possible. Make sure that the information provided to participants (eg information sheets, consent forms) is consistent with the answer to C12.

Participants will be free to withdraw from the study at any time (i.e. during and after data collection). All data will be anonymized. Once data is analyzed and written up for publication/submission it will no longer be possible to remove their data. For this reason, we specify that participants should notify us within 7 days of completing the experiment if they wish their data to be withdrawn. Participants will be informed of this prior to taking part in the study.

C.13 How long will the participant have to decide whether to take part in the research?[31]
It may be appropriate to recruit participants on the spot for low risk research; however, consideration is usually necessary for riskier projects.

The risks involved in this study are very low, and therefore participants should not need to take long before deciding whether they are comfortable to take part. However, participants will be given as much time as they deem necessary to come to a decision.

C.14 What arrangements have been made for participants who might have difficulties understanding verbal explanations or written information, or who have particular communication needs that should be taken into account to facilitate their involvement in the research?[32] *Different populations will have different information needs, different communication abilities and different levels of understanding of the research topic. Reasonable efforts should be made to include potential participants who could otherwise be prevented from participating due to disabilities or language barriers.*

We are recruiting from a population mostly including university staff and students, so we anticipate that all participants will have a reasonable level of English language skill. A researcher and supervisor will be on hand to answer any questions they may have, and will be bought in if it is at any point unclear as to whether the participant full understands the instructions.

C.15 Will individual or group interviews/ questionnaires discuss any topics or issues that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could take place during the study (e.g. during interviews or group discussions)?[33] *The information sheet should explain under what circumstances action may be taken.*

☐ Yes ☑ No *If yes, give details of procedures in place to deal with these issues.*

C.16 Will individual research participants receive any payments, fees, reimbursement of expenses or any other incentives or benefits for taking part in this research?[34]

☑ Yes ☐ No

If Yes, please describe the amount, number and size of incentives and on what basis this was decided.

Participants will receive a one-off £10 payment upon completion of the study.

RISKS OF THE STUDY

C.17 What are the potential benefits and/ or risks for research participants in both the short and medium-term?[35]

Benefits: £10 payment
Risks: There is a mild risk of motion sickness, but this risk is small for young adults.

C.18 Does the research involve any risks to the researchers themselves, or people not directly involved in the research? *Eg lone working*[36]

☐ Yes ☑ No

If yes, please describe: _____

Is a risk assessment necessary for this research?

☐ Yes ☑ No If yes, please include a copy of your risk assessment form with your application.

NB: If you are unsure whether a risk assessment is required visit http://ris.leeds.ac.uk/HealthAndSafetyAdvice or contact your Faculty Health and Safety Manager for advice.

RESEARCH DATA

C.19 Explain what measures will be put in place to protect personal data. E.g. anonymisation procedures, secure storage and coding of data. Any potential for re-identification should be made clear to participants in advance.[37] Refer to http://ris.leeds.ac.uk/ConfidentialityAnonymisation and http://ris.leeds.ac.uk/ResearchDataManagement for guidance.

As per the SOP, the terms of the data protection Act 1988 will be adhered to and information will be securely stored. The data will be anonymised by coding and stored with the use of flash memory backup and manual files (e.g. a lab book stored in a locked filing cabinet).

C.20 How will you make your research data available to others in line with: the University's, funding bodies' and publishers' policies on making the results of publically funded research publically available. Explain the extent to which anonymity will be maintained. *(max 200 words)* Refer to http://ris.leeds.ac.uk/ConfidentialityAnonymisation and http://ris.leeds.ac.uk/ResearchDataManagement for guidance.

The original data anonymised by coding and will be available on request.

C.21 Will the research involve any of the following activities at any stage (including identification of potential research participants)? (Tick as appropriate)

- ☐ Examination of personal records by those who would not normally have access
- ☐ Access to research data on individuals by people from outside the research team
- ☐ Electronic surveys, please specify survey tool: _____ (further guidance)
- ☑ Other electronic transfer of data
- ☐ Use of personal addresses, postcodes, faxes, e-mails or telephone numbers
- ☐ Use of audio/ visual recording devices (NB this should usually be mentioned in the information for participants)
- ☑ FLASH memory or other portable storage devices

Storage of personal data on, or including, any of the following:

- ☑ University approved cloud computing services (Microsoft Office 365 for email (Exchange online) and Microsoft OneDrive for Business)
- ☐ Other cloud computing services
- ☑ Manual files
- ☐ Private company computers
- ☑ Laptop computers
- ☐ Home or other personal computers (not recommended; data should be stored on a University of Leeds server such as your M: or N: drive where it is secure and backed up regularly: http://ris.leeds.ac.uk/ResearchDataManagement.)

C.22 How do you intend to share the research data? (Indicate with an 'X) *Refer to http://library.leeds.ac.uk/research-data-deposit for guidance.*

- ☐ Exporting data outside the European Union
- ☐ Sharing data with other organisations
- ☐ Publication of direct quotations from respondents
- ☐ Publication of data that might allow identification of individuals to be identified
- ☑ Submitting to a journal to support a publication
- ☑ Depositing in a self-archiving system or an institutional repository
- ☑ Dissemination via a project or institutional website
- ☐ Informal peer-to-peer exchange
- ☐ Depositing in a specialist data centre or archive
- ☐ Other, please state: _____.
- ☐ No plans to report or disseminate the data

C.23 How do you intend to report and disseminate the results of the study? (Indicate with an 'X) Refer to http://ris.leeds.ac.uk/ResearchDissemination and http://ris.leeds.ac.uk/Publication for guidance.

- ☑ Conference presentation
- ☑ Peer reviewed journals
- ☑ Publication as an eThesis in the Institutional repository
- ☐ Publication on website
- ☐ Other publication or report, please state: _____
- ☐ Submission to regulatory authorities
- ☐ Other, please state: _____.
- ☐ No plans to report or disseminate the results

C.24 For how long will data from the study be stored? Please explain why this length of time has been chosen.[38] Refer to the RCUK Common Principles on Data Policy and http://ris.leeds.ac.uk/info/71/good_research_practice/106/research_data_guidance/5.
***Students**: It would be reasonable to retain data for at least 2 years after publication or three years after the end of data collection, whichever is longer.*

____3____ years, _____ months

CONFLICTS OF INTEREST

C.25 Will any of the researchers or their institutions receive any other benefits or incentives for taking part in this research over and above normal salary or the costs of undertaking the research?[39]

☐ **Yes** ☑ **No**

If yes, indicate how much and on what basis this has been decided

_____

C.26 Is there scope for any other conflict of interest?[40] *For example, could the research findings affect the any ongoing relationship between any of the individuals or organisations involved and the researcher(s)? Will the research funder have control of publication of research findings? Refer to http://ris.leeds.ac.uk/ConflictsOfInterest.*

☐ Yes ☑ No

If so, please describe this potential conflict of interest, and outline what measures will be taken to address any ethical issues that might arise from the research.

C.27 Does the research involve external funding? (Tick as appropriate)

☑ Yes ☐ No ***If yes, what is the source of this funding?*** EPSRC PROJECT TRANSITION

NB: If this research will be financially supported by the US Department of Health and Human Services or any of its divisions, agencies or programmes please ensure the additional funder requirements are complied with. Further guidance is available at http://ris.leeds.ac.uk/FWAcompliance and you may also contact your FRIO for advice.

PART D: Declarations

Declaration by Chief Investigators

1. The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.
2. I undertake to abide by the University's ethical and health & safety guidelines, and the ethical principles underlying good practice guidelines appropriate to my discipline.
3. If the research is approved I undertake to adhere to the study protocol, the terms of this application and any conditions set out by the Research Ethics Committee.
4. I undertake to seek an ethical opinion from the REC before implementing substantial amendments to the protocol.
5. I undertake to submit progress reports if required.
6. I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of patient or other personal data, including the need to register when necessary with the University's Data Protection Controller (further information available via http://ris.leeds.ac.uk/ResearchDataManagement).
7. I understand that research records/ data may be subject to inspection for audit purposes if required in future.
8. I understand that personal data about me as a researcher in this application will be held by the relevant RECs and that this will be managed according to the principles established in the Data Protection Act.
9. I understand that the Ethics Committee may choose to audit this project at any point after approval.

Sharing information for training purposes: Optional – please tick as appropriate:

☑ I would be content for members of other Research Ethics Committees to have access to the information in the application in confidence for training purposes. All personal identifiers and references to researchers, funders and research units would be removed.

Principal Investigator

Signature of Principal Investigator: .....  ..... (This needs to be an actual signature rather than just typed. Electronic signatures are acceptable)

Print name: ..Richard Wilkie..... Date: (dd/mm/yyyy): .....02/07/2019.....

Supervisor of student research: I have read, edited and agree with the form above.

Supervisor's signature: .....  ..... (This needs to be an actual signature rather than just typed. Electronic signatures are acceptable)

Print name: ....Richard Wilkie..... Date: (dd/mm/yyyy): .....02/07/2019.....

Please submit your form **by email** to researchethics@leeds.ac.uk or if you are in the Faculty of Medicine and Health FMHUniEthics@leeds.ac.uk. **Remember to include any supporting material** such as your participant information sheet, consent form, interview questions and recruitment material with your application.

To help speed up the review of your application:

- ❑ Answer the questions in plain English, avoid using overly technical terms and acronyms not in common use.

- ❑ Answer all the questions on the form, including those with several parts (refer to the guidance if you're not sure how to answer a question or how much detail is required).

- ❑ Include any relevant supplementary materials such as

    - ❑ Recruitment material (posters, emails etc)

    - ❑ Sample participant information sheet

    - ❑ Sample consent form. Include different versions for different groups of participants eg for children and adults, clearly indicating which is which.

    - ❑ Signed risk assessment (If you are unsure whether a risk assessment is required visit http://ris.leeds.ac.uk/HealthAndSafetyAdvice or contact your Faculty Health and Safety Manager for advice.).

  Remember to include use version control and meaningful file names for the documents.

- ❑ If you are not going to be using participant information sheets or consent forms explain why not and how informed consent will be otherwise obtained.

- ❑ If you are a student it is essential that you discuss your application with your supervisor.

- ❑ Submit a signed copy of the application, preferably electronically. Students' applications need to be signed by their supervisors as well.

Driving Experience Survey & Instruction Sheet

Study title: Investigating the impact of cognitive load upon automated driving

Ethics approval has been granted by the School of Psychology Research Ethics Committee

Ethics Reference Number: XX-XXXX

Approval Date: XX/XX/XXXX

Participant Number: ……

Age: .....

Gender: M F

Vision: Normal Corrected-to-normal (contacts)

Do you hold a driving license: .....

If yes, how many years have you held driving license: .....

Driving frequency (please circle): Daily Weekly Monthly Rarely

Handedness: R L A

How often do you play video games related to driving? (1: not at all, 7: everyday)

1 2 3 4 5 6 7

How often have you used automated driving systems, e.g. cruise control, parking assistance? (1: not at all, 7: everyday)

1 2 3 4 5 6 7

How often do you engage in non-driving related tasks whilst driving, e.g. phone use? (1: not at all, 7: everyday)

1 2 3 4 5 6 7

Instructions

The automated vehicle will attempt to navigate a series of bends.
Your task as the supervisory driver is to make sure the vehicle stays within the road edges.
During automation please keep your hands loosely on the wheel.
You may take control by pressing the gear pads.
Once pressed, you will immediately be in control of the vehicle.

Volunteer Information & Consent Sheet

Study title: Investigating the impact of cognitive load upon automated driving

Ethics approval has been granted by the School of Psychology Research Ethics Committee
Ethics Reference Number: XX-XXXX
Approval Date: XX/XX/XXXX

Principal Investigator: William Sheppard

Supervisor: Dr. Richard Wilkie
Co-Supervisor: Dr. Callum Mole & Dr. Jami Pekkanen

Address: School of Psychology
University of Leeds
Leeds, LS2 9JT

E-Mail: cn13ws@leeds.ac.uk, C.D.Mole@leeds.ac.uk, j.j.o.pekkanen@leeds.ac.uk, R.M.Wilkie@leeds.ac.uk

We are researchers in the School of Psychology at the University of Leeds, interested in investigating how cognitive distractions effect our behaviour when driving a car and the factors which influence our ability to steer accurately.

This research is subject to ethical guidelines set out by the British Psychological Society. These guidelines include principles such as:

Obtaining your informed consent before research starts
Notifying you of your right to withdraw
Protecting your anonymity

This sheet will hopefully provide you with enough information about the study to allow you to make an informed decision about participation. However, if you have any questions or would like to discuss anything with us, please don't hesitate to ask.

This experiment will involve a number of trials using a driving simulator to collect our data. You will have a few practice trials to famliarise yourself with the simulator. This experiment is expected to last no more than 60 minutes. **You will receive £10 compensation after the session.**

You are free to withdraw from the study without explanation and have the right to terminate the experiment at any time. The data collected during the experiment can be withdrawn within 7 days. Your data may be used in a report and a presentation of the research but these data will remain anonymous.

Requirements: This study requires that you have normal or corrected-to-normal vision (preferably using **contact lenses** instead of glasses), are not deaf and/or hard of hearing, and also you should not have a history of epilepsy. Since you will be in a simulated driving environment it is better to avoid doing this study if you are extremely prone to motion sickness.

Thank you for taking the time to read this information sheet. If you wish to discuss the study further or have any questions please feel free to do so now. Please turn over to give consent.

Consent Form

Study title: Investigating the impact of cognitive load upon automated driving

Ethics approval has been granted by the School of Psychology Research Ethics Committee
Ethics Reference Number: XX-XXXX
Approval Date: XX/XX/XXXX

Participant Code:

Thank you for agreeing to take part in this study.

The purpose of this form is to make sure that you are happy to take part in the research and that you know what is involved.

Are you prone to extreme motion sickness?	YES / NO
Do you currently, or at any point in the past, suffer from any form of epilepsy?	YES / NO
Have you had the opportunity to ask questions and discuss the study?	YES / NO
If you have asked questions, have you had satisfactory answers?	YES / NO / NA
Do you understand that you are free to end the study at any time?	YES / NO
Do you agree to take part in this study?	YES / NO
Do you grant permission for the data to be used in reports of the research on the understanding that your anonymity will be maintained at all times?	YES / NO

Signed (Participant)

_____

Name in Block Letters

_____

Signed (Researcher)

_____

Name in Block Letters

_____

Date _____

Debrief Form

Thank you for taking part in experiment “Investigating the impact of cognitive load upon automated driving”.

The purpose of the study was to observe the effects of a non-driving related task on steering behaviour and gaze direction when regaining control from an automated vehicle. Previous literature suggests that both steering and gaze will diverge away from the centre of the road with the presence of a cognitive task.

All your data will be coded, and you cannot be identified by your participant code. Your consent form will be kept locked away. However, remember you are still free to withdraw your data at any point, and if you wish to do so please feel free to contact us.

Thank you again for your participation, and please feel free to ask any questions you may have.

William Sheppard
cn13ws@leeds.ac.uk

Supervised by Richard Wilkie, Callum Mole, and Jami Pekkanen
R.M.Wilkie@leeds.ac.uk, C.D.Mole@leeds.ac.uk, j.j.o.pekkanen@leeds.ac.uk,

Email

Study title: Investigating the impact of cognitive load upon automated driving

Ethics approval has been granted by the School of Psychology Research Ethics Committee

Ethics Reference Number: XX-XXXX

Approval Date: XX/XX/XXXX

Dear Potential Participant,

We are interested in investigating the impact of a cognitive load task on the ability to successfully and safely regain control of an automatic car, as measured through both steering behaviours in a driving simulator, and gaze behaviours via an eye-tracker.

I am approaching you as a potential participant for this research study. You will have a short set of practice trials to familiarise yourself with the equipment and tasks. You will be asked to drive following a path, initially with automatic steering, and when signalled to, regain control of the car. This experiment is expected to take less than 60 minutes and you will receive participant pool credits after the session.

Requirements: This study requires that you have normal or corrected-to-normal vision (preferably using contact lenses instead of glasses), are not deaf and/or hard of hearing, and have no history of epilepsy. Since you will be in a simulated driving environment it is better to avoid doing this study if you are extremely prone to motion sickness.

If you are interested please reply to cn13ws@leeds.ac.uk, for more information

William Sheppard, Callum Mole, Jami Pekkanen, and Richard Wilkie

Driving Laboratory
DrivingLab (LG23)

School of Psychology,
University of Leeds
April 2017

Standard Operating Procedures for:
Steering and Braking Experiments using Eye-Tracking and Head-Tracking
Perception – Action – Cognition Laboratories
Principal investigator:
Dr Richard M. Wilkie

Overview and scope of document
This document sets out the Standard Operating Procedures (SOP) for running experiments measuring Steering and Braking as well as Eye- and Head-tracking within the Virtual Environment Locomotor Control Laboratory (Institute of Psychological Sciences, University of Leeds). These should be applied in conjunction with the BPS Code of Ethics and Conduct [1]. On the basis that proposed studies conducted adhere to all aspects of this SOP, this document can be referred to as part of an ethics application making the application process simpler and speeding the decision making of the Ethics Committee. Aspects of studies that extend beyond the recording of driving (steering and braking), eye- and head- movements, as set out in this SOP, or that are particularly sensitive must be part of an ethics application in the normal manner.

1. Introduction

In the Driving Laboratory we are interested in how people use visual information to locomote in virtual reality environments. The measures we are interested in are steering trajectories, braking responses, and eye- and head- movements.

2. Equipment

2.1 Virtual Environment

The Virtual Environment is generated using Direct-X libraries or other software (e.g. WorldViz VIZARD). The virtual environment can be back-projected, using a Sanyo Liquid Crystal Projector (PLC-XU58), onto a back projection screen with dimensions up to 1.98 m × 1.43 m, or forward projected onto a wall with dimensions up to 1.67m x .9m. Participants are typically sat 1 m away from either screen, so the total visual angle of display is 89.42° × 71.31° (for the back-projection) and 79.72° x 48.46° (for the forward-projection). We have the flexibility of rendering both projections (therefore rendering an L-Shape CAVE) or rendering each projection independently (see Figure 1). A height-adjustable racing-style driving seat is used to maintain the desirable eye-height, which may be different for each experiment.
Participants will interact with the virtual environment using a Logitech G27 Racing Wheel with pedals. Depending on the nature of the experiment, the speed might be held constant, in which case participants will only be using the steering wheel to control their position in the world, or the participants might be required to control both the speed and their position, or just their speed.
Figure 1 displays a participant seated in the height-adjustable racing-style driving seat in front of the screen holding the steering wheel.

Ethical Considerations: Due to the large visual angle of the display, the relatively short distance from it, the fast refresh rate (50 to 60Hz) and the fact that it usually will display high-speed motion, participants who i) suffer from severe motion sickness and ii) have a history of epilepsy will be strongly discouraged from taking part in any study under this SOP. Participants will be screened for these conditions in three separate stages:

1) In the participant selection stage. If this is done through the Institute's Participant Pool then this information will be part of the project description. If the recruitment happens from word of mouth then this information will be disseminated verbally.

2) On the experiment's Information Sheet which all of the participants will read prior to signing the consent form.

3) On the consent form participants will have to declare that they do not suffer from severe motion sickness or from any form of epilepsy.

Additionally, a short practice will be given to the participants to make sure they are comfortable with the set-up. Moreover, both in the information sheet and verbally through the experimenter they will be encouraged to stop the experiment if they feel any discomfort. In the consent form the participant signs there will be a reminder of the fact that it is within their rights to abandon the experiment at any point without giving any explanation. In the event of a participant feeling sick during the experiment the experiment will be abandoned immediately and the participant will be taken outside for fresh air (there is a fire exit and a toilet very close to the laboratory).
Regarding the seating of the participant, when the participant will be seated or taken out of the height-adjustable chair the lights of the room will always be switched on.
The use of the steering wheel and the pedals do not pose any risks or ethical issues to the best of our knowledge.

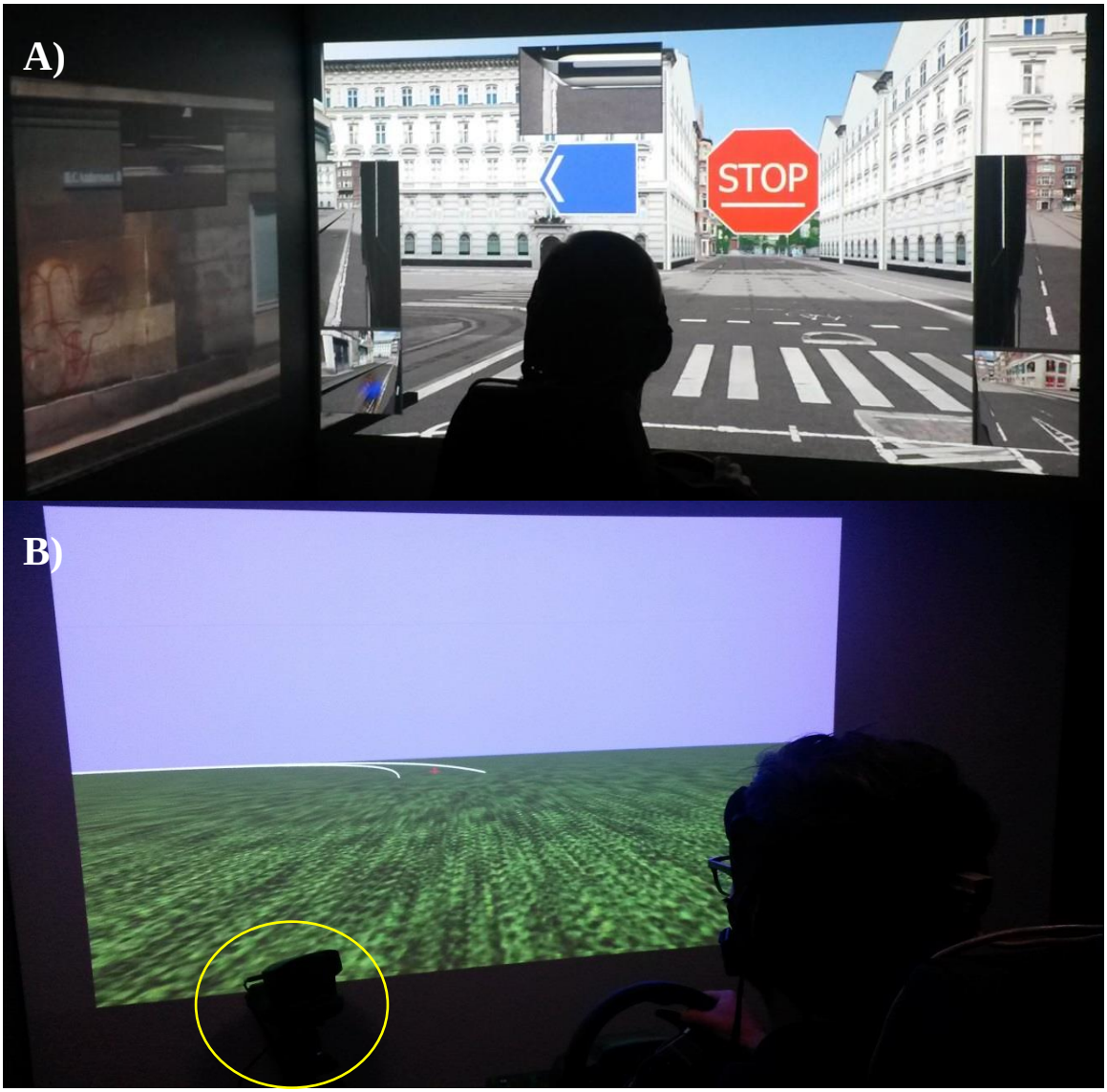

Figure 1.Participant seated in front of the Driving Lab screen using the steering wheel and wearing the head-tracking band. In A) two projections are used, whereas in B) only a single projection is used. The remote ASL eye-tracker can also be seen in B) (circled).

2.2 Eye-Tracking

Eye data will be recorded using a remote Applied Science Laboratories (ASL) 504 gaze monitoring system, which uses pan-tilt tracking to follow the participant's eye movements. This is done by locating the pupil of the left eye which moves along with the eyeball, and also by tracking the reflection of a beam of infra-red light from the cornea, which should stay constant assuming the eyeball is sufficiently spherical. By comparing the relative distance of the pupil and the corneal reflection (CR) we can determine the participant's point of gaze.

Ethical Considerations: The eye tracker uses LEDs to locate the point of gaze. Although such technology has sometimes been associated with dry eyes, Sliney and Stuck (2001) [2] conducted an investigation on the LED's used in eye-trackers, and found no risks associated with them, and even lengthy exposures to the cornea and lens at extremely close distances (10cm) posed no hazards.

Because this technology does not work well when a participant is wearing glasses (aberrant reflections) we usually screen out participants who do need glasses to drive.

3. Training, supervision and personal safety

Every study taking part in the Driving Laboratory will be conducted by a suitable trained researcher and initially under the direct supervision of the Principal Investigator (PI) or a fully trained Post-Graduate. Training should include:

A. Emergency exit routes from the lab, area and building in the event of any incident (e.g. fire).

B. Safe use of all equipment needed for the study.
C. Knowledge of the first aiders in School of Psychology.

The above training should be carried out by the PI or an appropriate PG student.
Testing outside office hours should be avoided. In cases where this is unavoidable, University Security Services should be informed.

4. Access to the lab

The use of lab is only permitted by Institute staff or students involved in Institute-based research/teaching.
Access permission for undergraduate students must be obtained from the PI prior to use.
The key to the lab is loaned from the PI and it is to be returned immediately after the laboratory activity has been concluded each day.
All electrical equipment and lights are to be turned off at the end of each day.
A timetable for booked usage can be found online at http://www.leeds.ac.uk/paclab/bookings. Select 'Driving Lab' from the dropdown list and click the orange button to display the slots available. .
No materials or equipment are to be taken from the lab without permission from the PI.

5. Informed Consent

Participants will have to give their informed consent after they read the appropriate information sheet (see Appendix B for example) for each study by filling the form in Appendix A. The consent forms will be the only document that will bear both the participants' names and codes and as such will be kept in a locked filing cabinet in the lab, and will never leave the Institute. Only people directly involved to the study will have access to these files.
By keeping a record of the participant's name and code we can ensure the right of the participants to withdraw their data from the study at any point.
Other information about the participant that is relevant to each experiment may be collected as long as this information is not of a sensitive nature and remains anonymous. Special permission should be sought from the appropriate Ethics Committee in case sensitive information is required.

References

1. http://www.bps.org.uk/the-society/code-of-conduct_home.cfm
2. http://www.cie.co.at/div2/meetings/LED Sympo 2001/Abstracts/David_Sliney.pdf

Appendix A

Consent Form

Study title: Investigating the impact of cognitive load upon automated driving
Participant Code:

Thank you for agreeing to take part in this study.

The purpose of this form is to make sure that you are happy to take part in the research and that you know what is involved.

Are you prone to extreme motion sickness? YES/NO

Do you currently, or at any point in the past, suffer from any form of epilepsy? YES/NO

Have you had the opportunity to ask questions and discuss the study? YES/NO

If you have asked questions, have you had satisfactory answers? YES/NO/NA

Do you understand that you are free to end the study at any time? YES/NO

Do you agree to take part in this study? YES/NO

Do you grant permission for the data to be used in reports of the research on the understanding that your anonymity will be maintained at all times? YES/NO

Signed

_____

Name in Block Letters

_____

Date _____

Appendix B

Volunteer Information Sheet

Principal Investigator: Dr Richard Wilkie
Researchers: Dr. Callum Mole, Dr. Jami Pekkanen & William Sheppard
Address: School of Psychology, University of Leeds, Leeds, LS2 9JT
E-Mail: r.m.wilkie@leeds.ac.uk

We are researchers in the School of Psychology at the University of Leeds, interested in investigating how we use visual information when driving a car and the factors which influence our ability to steer accurately. This research is subject to ethical guidelines set out by the British Psychological Society. These guidelines include principles such as:

Obtaining your informed consent before research starts
Notifying you of your right to withdraw
Protecting your anonymity

This sheet will hopefully provide you with enough information about the study to allow you to make an informed decision about participation. However, if you have any questions or would like to discuss anything with me please don't hesitate to ask.

I am approaching you as a potential participant for this research study as I am interested in learning about the effects of eye-movements and head-movements on steering accuracy. This involves using an eye-tracker, a type of infrared camera pointed towards your eye, and a magnetic head tracker which will be placed on a band around your head. After setting up and calibrating the eye and head tracker (which can take around 10 minutes) you will have a short set of practice trials to familiarise yourself with the equipment. You will then be asked to drive through a computer-generated environment. The whole experiment will last approximately an hour. You will be able to take breaks during the duration of the study.

You are free to withdraw from the study without explanation and have the right to terminate the experiment and withdraw your data at any time. You will remain anonymous. The data collected during the experiment may be used in a report and presentation of the research.

Requirements: This study requires that you have normal or corrected-to-normal vision (preferably using contact lenses instead of glasses), and also you should not have a history of epilepsy.
Because you will be in a simulated driving environment it is better to avoid doing this study if you are extremely prone to motion sickness.
Thank you for taking the time to read this information sheet. If you wish to discuss the study further or have any questions please feel free to do so now.

Debrief

You may have noticed subtle changes during some trials in the experiment or experienced difficulties in steering in some trials. This is to be expected because the purpose of the experiment was to examine how you used information when steering, and what happens if we disrupt your ability to use certain information.

If you have any further questions or are interested in the outcome of this study, please contact the head researcher (Dr. Wilkie): R.M.Wilkie@leeds.ac.uk

Thank you very much for participating in this study!

Activity Risk Assessment **Institute of Psychological Sciences**		UNIVERSITY OF LEEDS
Assessment title: Driving Laboratory	Assessment No	
Location: LG23		

Local Rules & Procedures for completing Risk Assessments

I Confirm I have read and agree with the University Standards and Local Rules and procedures for completion of this assessment

Reference information

- Health and Safety at Work etc Act 1974
- Management of Health and Safety at Work Regulations 1999

Occupational Health

Do Occupational Health need to be notified and involved in this activity? Yes ☐ No ☐√
Occupational health details: (What Health Screening involved) Air function Test / Mask Fitting / Blood Screening / Competency – training (type) .....
Date occupational health informed: Date.....
Occupational Health person informed: Name.....

Supervision

Is supervision required when carrying out this activity? Yes ☐ No ☐√
Level of supervision required: (If yes give details) Yes ☐ No ☐√ Details.....

The aim of this risk assessment is to provide information on the types of risks and hazards that employees, students and others may be exposed to, arising from the activities described.

IDENTIFICATION OF RISKS, CONTROL MEASURES & ACTIONS							
HAZARDS	**HOW MIGHT THE HAZARD CAUSE HARM?**	**WHO MAY BE HARMED?**	**CURRENT CONTROL MEASURES IN PLACE**	**ARE CONTROL MEASURES ADEQUATE?**	**LIST ADDITIONAL CONTROL MEASURES IF NEEDED**	**RISK RATING WITH CURRENT CONTROLS** (Likelihood x Severity)	**ACTION BY**
Entry/exit from the building & Local area	Trips, slips and falls	Staff, PGs, UGs	Nonslip flooring will be checked and maintained. If wet appropriate warning stands will be placed in the stairwell foyer. Maintained by Estates and Cleaning Services. Defects must be reported to the Institute Safety Coordinator.	Yes		1 x 2	
Lone working (incl. evenings & weekends)	Accidents, Injury or ill health while no assistance is available.	Staff, PGs	Users will be informed of the Institute safety policy (In line University guidelines). Institute Out-of-hours signing in procedure will be followed at all times. A phone (with campus access) will be locally accessible. Local toilet facilities within short distance. Line Managers/ Supervisors should satisfy themselves that the individual has adequate knowledge, skills, experience and training for the work activities - including that related to emergency actions. In case of incidents/accidents a contact list of First Aiders and Fire Wardens will be available on the Lab notice board with emergency contacts for Security. Accidents, Incidents or near misses will be reported to the	YES YES		1 x 2	

IDENTIFICATION OF RISKS, CONTROL MEASURES & ACTIONS							
HAZARDS	**HOW MIGHT THE HAZARD CAUSE HARM?**	**WHO MAY BE HARMED?**	**CURRENT CONTROL MEASURES IN PLACE**	**ARE CONTROL MEASURES ADEQUATE?**	**LIST ADDITIONAL CONTROL MEASURES IF NEEDED**	**RISK RATING WITH CURRENT CONTROLS** (Likelihood x Severity)	**ACTION BY**
			HS Coordinator (in a timely manner), who will record them on Sentinel and take appropriate actions.				
Computer-based presentation of experimental stimuli leading to participant adverse events: nausea, dizziness, extreme fainting	In some experimental studies, repeated presentation of very short duration stimuli may induce headaches – or possibly photosensitive epilepsy. Some simulations (e.g., driving) may induce nausea.	Participants	Participants will be informed of the relevant testing procedure and will be screened to avoid those with conditions that might be sensitive, and required to give informed consent. Participants will be carefully monitored for well-being. Specific questions are asked before participating in any study to ensure that (a) participants do not have history of any form of epilepsy and (b) participants are not prone to motion sickness in the case of driving simulation experiments prior to participants giving informed consent. A short practice will be given to the participants to make sure they are comfortable with the set-up. Moreover, both in the information sheet and verbally through the experimenter they will be encouraged to stop the experiment if they feel any discomfort.	YES		1 x 2	

IDENTIFICATION OF RISKS, CONTROL MEASURES & ACTIONS							
HAZARDS	**HOW MIGHT THE HAZARD CAUSE HARM?**	**WHO MAY BE HARMED?**	**CURRENT CONTROL MEASURES IN PLACE**	**ARE CONTROL MEASURES ADEQUATE?**	**LIST ADDITIONAL CONTROL MEASURES IF NEEDED**	**RISK RATING WITH CURRENT CONTROLS** (Likelihood x Severity)	**ACTION BY**
Use of computing equipment	Electrical hazards – possible shock, trips from cables		Visual inspection of equipment carried out annually. Necessary additional PAT's testing of equipment carried out by trained competent personnel. Prior to any extended use checks will be made of the suitability of the seating arrangement for the workstation for the individual. Cables will be tied with cable ties to keep loose cables from becoming a trip hazard.	YES		1 x 2	
Use of eye tracking equipment	Electrical hazards – shock	Staff, PGs, UGs, experimental participants	Users will be required to report any damage immediately to the Lab Supervisor or PI. Damaged equipment to be taken out of use for repair. Regular PAT's testing of equipment carried out by trained competent personnel. Use of equipment will be restricted to competent individuals (trained as appropriate).	YES		1 x 2	
Manual handling – Movement of bulky items into/within the lab and storage of	Movement of computers, screens, etc.,	Staff, PGs, UGs	Staff will be aware, through induction, of manual handing procedures. Online awareness training (University Website –	YES		1 x 4	

IDENTIFICATION OF RISKS, CONTROL MEASURES & ACTIONS							
HAZARDS	**HOW MIGHT THE HAZARD CAUSE HARM?**	**WHO MAY BE HARMED?**	**CURRENT CONTROL MEASURES IN PLACE**	**ARE CONTROL MEASURES ADEQUATE?**	**LIST ADDITIONAL CONTROL MEASURES IF NEEDED**	**RISK RATING WITH CURRENT CONTROLS** (Likelihood x Severity)	**ACTION BY**
consumer products (bottles, jars, etc.).	leading to sprains, etc.	Staff, PGs, UGs, experimental participants	Safety Services) will also be available. Opportunities for students to engage in this type activity will be minimised. Local first aid will be available (administered by first aid trained personnel within the Institute). A list of FA's and their locations will be posted on the lab notice board. In the unlikely event of more serious injuries, these may require treatment by a medical practitioner. Any accidents will be reported to the HS Coordinator, who will record them on Sentinel and take appropriate actions.				
Violence and Aggression	Potential violence or injury from participants or a third party who has gained unauthorized access	Staff, PGs, UGs	The potential for violence and aggression is identified. Individuals working in an environment that has been identified are briefed on recognising these situations and diffusing the situation where possible and also in methods of reducing the risk of this type of situation, e.g. participant screening and not working alone with participants out of hours. If the building has been compromised by unauthorised			1 x 4	

IDENTIFICATION OF RISKS, CONTROL MEASURES & ACTIONS							
HAZARDS	**HOW MIGHT THE HAZARD CAUSE HARM?**	**WHO MAY BE HARMED?**	**CURRENT CONTROL MEASURES IN PLACE**	**ARE CONTROL MEASURES ADEQUATE?**	**LIST ADDITIONAL CONTROL MEASURES IF NEEDED**	**RISK RATING WITH CURRENT CONTROLS** (Likelihood x Severity)	**ACTION BY**
			individuals (especially out of hours); lock yourself in a secure area with access to a phone and calmly and clearly contact security on X32222 (emergency) giving them details of the situation. All incidents and concerns are reported either to the line manager, security or the Health and Safety Coordinator.				
Working with Children, Young Persons and Vulnerable Adults	Abuse/harm to Children, Young Persons and Vulnerable Adults from Staff / PGs / Students.	Staff / PGs / Students	Rigorous participant screening to ensure that any such individuals are known about prior to participation in studies. CRB checks required where appropriate. Otherwise, no Students/Staff to be left alone with such individuals. Where appropriate, all such individuals to be the responsibility of the accompanying parent or guardian.	YES		1 x 2	
COMMUNICATION OF RISK ASSESSMENT FINDINGS TO THOSE INVOLVED							
Local induction	Adherence to Risk Assessment is part of competency training.						
Details of risk assessment	Risk assessment reviewed by all						

IDENTIFICATION OF RISKS, CONTROL MEASURES & ACTIONS							
HAZARDS	**HOW MIGHT THE HAZARD CAUSE HARM?**	**WHO MAY BE HARMED?**	**CURRENT CONTROL MEASURES IN PLACE**	**ARE CONTROL MEASURES ADEQUATE?**	**LIST ADDITIONAL CONTROL MEASURES IF NEEDED**	**RISK RATING WITH CURRENT CONTROLS** (Likelihood x Severity)	**ACTION BY**
discussed and agreed		who currently manage the laboratory					
Controls covered by local protocols & procedures		There is an updated SoP in place with deals with issues raised above					
Safety Handbook location notified		There is a copy of the SoP in the laboratory.					
Team meeting		There are regular team meetings through which risk items are raised					
Email circulation		Risk items can also be raised through email.					
Other							
Attached documents links & reference numbers							

Academic supervisor/PI/Manager's review and sign off	
Created by: Callum Mole	26/06/2017
Reviewed by: Richard Wilkie	13/11/2018
Signed Off by: Richard Wilkie	13/11/2018

Next Risk Assessment review date
.

Outstanding Actions

Name	Action Required	Action Taken	Date

The aim of this risk assessment is to provide information on the types of risks and hazards that employees, students and others may be exposed to, arising from the activities described.

	Likelihood of harm being realised (L)				
Severity (S)	**Remote Possibility**	**Possible**	**Likely**	**Highly probable**	**Virtual**

						Certainty
		1	2	3	4	5
Nil - Very Minor	**1**	**Low (1)**	**Low (2)**	**Low (3)**	**Low (4)**	**Moderate (5)**
Slight First Aid treatment	**2**	**Low (2)**	**Low (4)**	**Moderate (6)**	**Moderate (8)**	**High (10)**
Moderate – RIDDOR over 3 days	**3**	**Low (3)**	**Moderate (6)**	**Moderate (9)**	**High (12)**	**High (15)**
High – Death, serious injury permanent disability	**4**	**Low (4)**	**Moderate(8)**	**High (12)**	**Extreme (16)**	**Extreme (20)**
Very High – Multiple Deaths	**5**	**Moderate (5)**	**High (10)**	**High (15)**	**Extreme (20)**	**Extreme (25)**

RISK RATING		ACTION & TIMESCALES
Extreme	**E (16-25)**	**Unacceptable – ACTION must be taken IMMEDIATELY**
High	**H (10-15)**	**High Risk – Priority Action to be undertaken**
Moderate	**M (5-9)**	**Moderate Risk – Reduce risk if reasonably practicable**
Low	**L (1-4)**	**Broadly Acceptable – Controls to be maintained**

The aim of this risk assessment is to provide information on the types of risks and hazards that employees, students and others may be exposed to, arising from the activities described.