UNIVERSITY OF ST ANDREWS
TEACHING AND RESEARCH ETHICS COMMITTEE (UTREC)

ETHICAL APPLICATION FORM

Please Tick: (*click on the box then click 'Checked' for a cross to appear in the box*)

Undergraduate ☐   Postgraduate Research ☐   Postgraduate Taught ☒   Staff ☐

Lecturer/Course Controller on behalf of Taught module ☐   Module Code: CS5099

Researchers Name(s):	HAN BAO		
Project Title:	Automated Creation of Puzzle games with Constraint Programming		
School/Unit: (Please indicate)	Computer Science	Supervisor:	Christopher Jefferson
Emails	hb89@st-andrews.ac.uk	Date Submitted	12/06/2018

Project Description: Please give a concise description without technical terminology of **what** you are proposing to do; **Who** your participants are (eg. age, vulnerability, nationality, organisation); **Where** the research will take place (eg. site, country); **How** you are doing it, (eg. survey, interview). *(90 words for database reasons)*
This summary will be reviewed by UTREC and may be published as part of its reporting procedures.

This project involve formulating "match three" rules, implementing simulations of "match three" puzzles, and performing experiments which measure how well the difficulty measure lines up with real adult users who are studying in the University of St Andrews. Through implementing engines of solving "match three" puzzles, puzzles would be divided into three difficult levels. Then, participants would try to solve the same puzzles and record their time spending in solving puzzles and also divide puzzles into three difficult levels in Computer Science Lab at St Andrews University. The data will be used to compare the results performed by computers and humans and evaluate the engine ability on classifying puzzles difficult levels.

Ethical Considerations: You should give an overview of the important ethical issues raised by your research including **how** you will obtain voluntary informed consent (especially where you are gathering audio/video data); **What** type of data you will be collecting (anonymous, coded, attributable); **How** you will handle, store and retain/destroy data. *(90 words for database reasons)* You should elaborate on these issues in Q28.
This summary will be reviewed by UTREC and may be published as part of its reporting procedures.

Participants will indicate informed consent by reading and signing a form. All participants are anonymous and only their spending time on solving problems would be saved. I would use an "Timer" in the program and record this data in the Excel file. All raw data will be destroyed after submission of the project.

APPLICATIONS MUST BE SUBMITTED TO THE RELEVANT SCHOOL ETHICS COMMITTEE
https://www.st-andrews.ac.uk/utrec/SEC/SECMembers/   **PLEASE DO NOT SUBMIT DIRECTLY TO UTREC.**

- Please submit an electronic copy and one hard copy (with signatures) to the Secretary/Administrator. In the absence of a Secretary please submit to the SEC Convener.
- Applicants must be accompanied by the relevant supporting documents without which a full ethical assessment cannot be made.
- Please do not type out with the text boxes provided, note that the Text Boxes are fixed in size and will not allow any viewing beyond the word limit permitted.

If ethical approval has been obtained from the University of St Andrews for research so similar to this project that a new review process may not be required, please give details of the application and the date of its approval.
Approval Code:
Date Approved:
Project Title:
Researchers Name(s):

RESEARCH INFORMATION

1. Estimated Start Date: 20 July 2018

2. Estimated Duration of Project: 6 Weeks

3. Is this research funded by any external sponsor or agency?   **YES** ☐   **NO** ☒

If YES please give details:

For projects funded by ESRC please be aware of the Ethical and Legal Considerations found at
http://www.esds.ac.uk/aandp/create/ethical.asp

ESRC Funded Studentships (postgraduate Students) please be aware of the requirements as outlined at (in particular in relation to Submission of data to the Economic and Social Data Service, ESDS

4. Does this research entail collaboration with researchers from other institutions and/or across other University Schools/Units?   **YES** ☐   **NO** ☒

If YES state names and institutions of collaborators:

5. If the research is collaborative has a framework been devised to ensure that all collaborators, including all University Staff, External Researchers, and Students, are given appropriate recognition in any outputs?   **N/A** ☒   **YES** ☐   **NO** ☐

6. Where projects raise ethical considerations to do with roles in research, intellectual property, publication strategies/authorship, responsibilities to funders, research with policy or other implications etc., have you taken appropriate steps to address these issues?   **N/A** ☒   **YES** ☐   **NO** ☐

7. Location of Research Fieldwork to be conducted: Department of Computer Science, University of St Andrews

8. Are you using only library, internet sources or unpublished data *(with appropriate licenses and permissions)* and so have no human involvement such as interviewing of people?   **YES** ☐   **NO** ☒

9. a. Who are the intended Participants (e.g. students aged 18-21) and how will your recruit them (e.g. advertisement)   Students ages 18-25, by advertisement and word of mouth

   b. Estimated duration of Participant Involvement.   30 minutes

If you have answered YES to Q8 but the project has other Ethical Considerations please go to Q.28. If there are no other Ethical Considerations please sign and submit.

ETHICAL CHECKLIST

10. Have you obtained permission to access the site of research? **N/A** ☒ **YES** ☐ **NO** ☐

    If YES please state agency/authority etc. & provide documentation.
    If NO please indicate why in Q.28

11. Will inducement i.e. other than expenses, be offered to participants? **YES** ☐ **NO** ☒
    If YES, please give details of the inducement being offered and justify

12. Has ethical approval been sought and obtained from any external body e.g., REC(NHS)/LEA and or including other UK Universities? If YES, please attach a copy of the external application and approval. **N/A** ☒ **YES** ☐ **NO** ☐

13. Will you tell participants that their participation is voluntary? **YES** ☒ **NO** ☐

14. Will you describe the main project/experimental procedures to participants in advance so that they can make an informed decision about whether or not to participate? **YES** ☒ **NO** ☐

15. Will you tell participants that they may withdraw from the research at any time and for any reason, without having to give an explanation? **YES** ☒ **NO** ☐

16. Please answer either a. or b.
    a. Will you obtain written consent from participants? **YES** ☒ **NO** ☐

    b. (ONLY: Social Anthropology, Geography/Geoscience, International Relations & Biology)

    Will you obtain written consent from participants, in those cases where it is appropriate? **YES** ☐ **NO** ☐

17. Please answer either a. or b.
    a. If the research is photographed or videoed or taped or observational, will you ask participants for their consent to being Photographed, videoed, taped or observed? **N/A** ☒ **YES** ☐ **NO** ☐

    b. (Social Anthropology & Biology ONLY)
    Will participants be free to reject the use of intrusive research Methods such as audio-visual recorders and photography? **N/A** ☒ **YES** ☐ **NO** ☐

18. Please answer either a. or b.
    a. Will you tell participants that their data will be treated with full confidentiality and that if published, it will not be identifiable as theirs? **YES** ☒ **NO** ☐

    b. Will you tell participants their work /contribution will be credited unless they specifically request anonymity? **YES** ☐ **NO** ☐

19. Will participants be clearly informed of how the data will be stored, who will have access to it, and when the data will be destroyed? **YES** ☒ **NO** ☐

20. Will you give participants a brief explanation in writing of the study? i.e. a debrief **YES** ☒ **NO** ☐

21. With questionnaires and/or interviews, will you give participants the option of omitting questions they do not want to answer? **N/A** ☐ **YES** ☒ **NO** ☐

If you have answered NO to any question 12- 21, please give a brief explanation in the statement of Ethical Considerations on Page 1 and expand in Q28 if necessary.
If you have answered YES, it must be clearly illustrated in the relevant paperwork which must be attached i.e.
Participants Information Sheet, Consent Form, Debriefing Form, Questionnaire, Letters etc……

WORKING WITH CHILDREN AND OR VULNERABLE PEOPLE

Do participants fall into any of the following special groups?

22. a. Children (under the age of 16 in Scotland or 18 in England/Wales)	YES ☐	NO ☒
b. Vulnerable Adult, receiving care or welfare services	YES ☐	NO ☒
c. People with learning or communicative difficulties	YES ☐	NO ☒
d. Residents/Carers in a specific location, e.g. Care Home	YES ☐	NO ☒

NOTE TO SCHOOL ETHICS COMMITTEE. If the researcher has answered YES to Q22 this application, with all supporting documentation, **must** be forwarded to UTREC for review and approval. Exempt: Geography and Geoscience, Medicine and Psychology

NOTES TO RESEARCHER. If you answer YES to Q.22 a.–d., you may be required to obtain Protection of Vulnerable Groups [PVG] *Disclosure* approval. 'Working with Children and or Vulnerable People' guidelines and procedures can be found on our webpage https://www.st-andrews.ac.uk/utrec/ethicalapplication/children/

For those planning to conduct research in England / Northern Ireland please obtain the equivalent police check. Disclosure and Barring Service (DBS), previously known as *CRB*. https://www.gov.uk/crb-criminal-records-bureau-check/overview

e. NHS Patients or Staff	YES ☐	NO ☒
f. Institutionalised persons	YES ☐	NO ☒

If you answer YES to Q 22.,e. or f., it is likely you will be required to obtain approval from the NHS. This **must** be sought prior to approval from the relevant SEC or UTREC.

g. People in custody	YES ☐	NO ☒
h. People engaged in illegal activities, e.g., drug-taking	YES ☐	NO ☒

If YES to Q22. g. or h., you should ensure that the relevant Risk Assessment Checklist has been completed. https://www.st-andrews.ac.uk/utrec/guidelines/riskassessment/

If you have answered NO to Q22 a–d please skip Q23 and proceed to Q24.

23. Have you lived/worked outside the UK in the last 12 months?	YES ☐	NO ☒

If you have **lived outside the United Kingdom (UK) for a period of more than 6 months and answered YES to the Q22** you will be required to provide a police check from that country to cover that period. Further information and helpful links are available on our 'Working with Children and or Vulnerable People' webpage https://www.st-andrews.ac.uk/utrec/ethicalapplication/children/

> **ETHICAL RISK**
>
> This section is for ethical use only and <u>does not</u> replace the requirement to submit a Fieldwork Risk Assessment Form to the relevant Health and Safety/Risk Officer in your School.   The University official procedures on Risk and Safety measures are linked from our webpage https://www.st-andrews.ac.uk/utrec/guidelines/riskassessment/

24. Are any of the participants in a dependant relationship with the investigator e.g. lecturer/student? If YES, give explanation in Q.28.   **YES** ☐ **NO** ☒

25. Will your project involve deliberately misleading participants in any way? If YES, give details in Q.28 and state why it is necessary and explain how debriefing will occur   **YES** ☐ **NO** ☒

26. Is there any significant risk to any paid or unpaid participant(s), field assistant(s), helper(s) or student(s), involved in the project, experiencing either physical or psychological distress or discomfort? If Yes, give details in Q.28 and state what you will do if they should experience any problems e.g. who to contact for help.   **YES** ☐ **NO** ☒

27. Do you think the processes, including any results, of your research have the potential to cause any damage, harm or other problems for people in your study area?   If YES, please explain in Q.28 and indicate how you will seek to obviate the effects.   **YES** ☐ **NO** ☒

> There is an obligation on the Lead Researcher & Supervisor to bring to the attention of the School Ethics Committee (SEC) any issues with ethical implications not clearly covered by the above

> **ETHICAL STATEMENT**
>
> 28. Please provide a clear, concise statement of the ethical issues raised by this project and provide details of how you will address these issues, paying particular attention to those questions which have specifically asked for clarification in Q28. This section should also provide full details of what type of data you will be collecting (anonymous, coded, attributable) and how you will handle/store and retain/destroy data.

Brief Overview of Experiment:

Participants will be recruited through in-department advertisement and word of mouth. They will be told they are playing computer-generated levels of a "match three" puzzle game, and be asked to rank the difficulty of each puzzle.

Inducement:

There will be no inducement for completion of the experiment.

Informed Consent:

Participants will be informed these puzzles were created by computer, and therefore may be very difficult or impossible for human players. They will be allowed to stop the experiment at any time, or not have their results recorded.

Data stored and anonymity:

The only recorded results will be if participants complete a level, and how long they attempted it for. All results will be stored anonymously, and destroyed after submission of the project.

DOCUMENTATION CHECKLIST

	YES	NO
Ethical Application Form	☒	☐
Participant Information Sheet	☒	☐
Consent Form	☒	☐
Debriefing Form	☐	☒
External Permissions	☐	☒
Letters to Parents / Children / Head Teachers etc…..	☐	☒
PVG Approval (Scotland) or Police Check (England/Other)	☐	☒
Advertisement	☐	☒

Other (please list):

DECLARATION

I am familiar with the UTREC Guidelines for Ethical Research http://www.st-andrews.ac.uk/utrec/guidelines/ and *BPS, *ESRC, *MRC and *ASA (*please delete the guidelines not appropriate to your discipline) Guidelines for Research practices, and have discussed them with other researchers involved in the project.

STUDENTS ONLY
My Supervisor has seen and agreed all relevant paperwork linked to this project   **YES** ☒   **NO** ☐

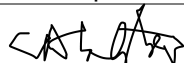| Print Name:	HAN BAO
Signature	HANBAO
Date:	13/06/2018

SUPERVISOR(S)
The Supervisor must ensure they have read both the application and the guidelines, and also has approved the project and application, before signing below, with clear regard for the balance between risk and the value of the research to the School/Student. (Supervisors should provide this on a separate sheet or supply to the student to insert below) Please, if you wish, add comments in no more than 200 words:

Print Name:	Christopher Jefferson
Signature	*CALJAR*
Date:	13/06/2018

STAFF RESEARCHER ONLY   **YES** ☐   **NO** ☐

Print Name:	
Signature	
Date:	

SCHOOL ETHICS COMMITTEE OFFICIAL USE ONLY

STATEMENT OF ETHICAL APPROVAL

This project has been considered using agreed University Procedures and has been:

☐ Approved   ☐ Not Approved pending:

                                                    ☐ More Clarification Required

                                                    ☐ New Submission Recommended

                                                    ☐ Discussed with Supervisor

                                                    ☐ Referred to UTREC

                                                    ☐ Referred to Fieldwork Subcommittee

Convenor's Name	
Signature	
Date:	

Please use the space below and additional pages to attach any supporting documents i.e. Participant Information Sheets, Consent Forms, Debriefing Forms, Questionnaires, Letter to Parents etc.
We recommend you refer to the sample documents provided at
https://www.st-andrews.ac.uk/utrec/EthicalApplication/SampleDocuments/

Participant Information

What is the study about?

We invite you to participate in a research project about solving computer-generated levels of a "match three" puzzle game, and measure how well the difficulty of each puzzle.

Do I have to take part?

This information sheet has been written to help you decide if you would like to take part. It is up to you and you alone whether you wish to take part. If you do decide to take part you will be free to withdraw at any time without providing a reason.

What would I be required to do?

You will be asked to play computer-generated levels of a "match three" puzzle game, and be asked to rank the difficulty of each puzzle. The whole process will take 30 minutes to complete.

Will I be recorded, and how will my recorded information be used?

The only recorded results will be if participants complete a level, and how long they attempted it for.

Will my participation be confidential?

The data you provide will only be accessible to the researcher and supervisor involved in this study unless explicit consent for wider access is given by means of the consent form. Your data will be ANONYMOUS which means that no-one, not even the researcher, will be able to identify you from the data you have provided. You will still be asked to give your consent, but your signed consent form cannot be reconnected to your data. Every effort will be made to protect your identity however when research is conducted online this cannot be guaranteed as a secure environment and there may be a possibility of a security breach.

How will my data be kept and when will it be destroyed?

All results will be stored anonymously, and destroyed after submission of the project.

How will my data be used?

It is expected that the project to which this research relates will be finalised by August 2018 and written up as part of my Master Dissertation. If you give your consent, your research data may be published and used for future scholarly research without further consultation.

Are there any risks associated with taking part?

Participants will be informed these puzzles were created by computer, and therefore may be very difficult or impossible for human players. They will be allowed to stop the experiment at any time, or not have their results recorded.

Informed consent

It is important that you are able to give your informed consent before taking part in my project and you will have the opportunity to ask any questions in relation to the research before completing a consent form.

This research proposal has been scrutinised and subsequently granted ethical approval by the University of St Andrews Teaching and Research Ethics Committee.

What should I do if I have concerns about this study?

Participant Consent Form
Anonymous Data

Project Title
Automated Creation of Puzzle games with Constraint Programming

Researcher(s) Name(s)	**Supervisors Names**
HAN BAO	**Christopher Jefferson**

The University of St Andrews attaches high priority to the ethical conduct of research. We therefore ask you to consider the following points before signing this form. Your signature confirms that you are happy to participate in the study.

What is Anonymous Data?

The term 'Anonymous Data' refers to data collected by a researcher that has no identifier markers so that even the researcher cannot identify any participant. Consent is still required by the researcher, however no link between the participant's signed consent and the data collected can be made.

Consent

The purpose of this form is to ensure that you are willing to take part in this study and to let you understand what it entails. Signing this form does not commit you to anything you do not wish to do.

Material gathered during this research will be anonymous, so it is impossible to trace back to you. It will be securely stored. The only recorded results will be if participants complete a level, and how long they attempted it for. All results will be stored anonymously, and destroyed after submission of the project. Please answer each statement concerning the collection and use of the research data.

I have read and understood the information sheet.	☐ Yes	☐ No
I have been given the opportunity to ask questions about the study.	☐ Yes	☐ No
I have had my questions answered satisfactorily.	☐ Yes	☐ No
I understand that I can withdraw from the study without having to give an explanation.	☐ Yes	☐ No
I understand that my data once processed will be anonymous and that only the researcher(s) (and supervisors) will have access to the raw data which will be kept confidentially.	☐ Yes	☐ No
I agree to my data (in line with conditions outlined above) being kept by the researcher and being archived and used for further research projects / by other bona fide researchers.	☐ Yes	☐ No
I have been made fully aware of the potential risks associated with this research and am satisfied with the information provided.	☐ Yes	☐ No
I agree to take part in the study	☐ Yes	☐ No

Participation in this research is completely voluntary and your consent is required before you can participate in this research.

Name in Block Capitals _____

Signature _____

Date _____

In the first instance you are encouraged to raise your concerns with the researcher and if you do not feel comfortable doing so, then you should contact my Supervisor. A full outline of the procedures governed by the University Teaching and Research Ethics Committee is available at www.st-andrews.ac.uk/utrec/guidelinespolicies/complaints/

Contact details

Researcher(s)	HAN BAO Hb89@st-andrews.ac.uk	Supervisor(s)	Christopher Jefferson caj@cs.st-and.ac.uk +44 1334 463272