GLASGOW COLLEGE, UESTC
Final year individual
PROJECT RISK ASSESSMENT

Student Name:	HeWenXiao
Student UoG & UESTC IDs:	2839915H 2022190504031
Project Title:	Data compression algorithms in joint communication and control systems design
Supervisor (1st) Name:	Olaoluwa Popoola

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The supervisor should think ahead and set out a work plan for the student. All potential hazards should be identified and necessary control measures made clear to the student. This risk assessment must be signed by the supervisor and the student, before work begins.

WORK ACTIVITY

> ***Please provide a description of the project plan:***
> This project focuese on designing, implementing, and evaluating a lightweight information compression framework for control data exchanged between distributed agents in a simulated environment.
> It is required to model a small network of communication agents such as robots and sensors with control-related messages
> compressed by certain algorithm aiming to develop and evaluate data compression techniques which can effectively reduce
> communication load in distributed control systems while maintaining stable and accurate system performance.

HAZARDS

Please identify ALL significant hazards associated with the project e.g. electrical, chemical, biological, mechanical etc. (use separate sheet if necessary):

1. System Overcharge or Server Crash
2. Network Delay or Communication Failure
3. Software or Configuration Error

TRAINING

Will the student receive relevant safety training? √☐ *Yes* ☐ *No*

Details of Training:

1. Regularly back up experimental data and monitor system's status
2. implement fault-tolerant communication, use local buffering, and enable automatic reconnection
3. Apply version control (Git), perform parameter verification, and conduct unit testing

Who will provide Training: Wanquan Zhang

Is the training adequate to control all hazards that have been identified? √☐ *Yes* ☐ *No*

COSHH

Will the COSHH regulations apply? ☐*Yes* √ ☐*No*

If Yes, please detail all COSHH assessments the student is required to read:

SUPERVISION

Will the student be supervised at all times?   *If Yes, please name people who will provide supervision:*   ✓☐*Yes*   ☐*No*   1. Wanquan Zhang   2. Olaoluwa Popoola

CONCLUSION

Are you satisfied that risks are adequately controlled?   ✓☐*Yes*   ☐ *No*   *If No, what further measures will be taken to reduce risk to an acceptable level?*   *(e.g. written scheme of work, physical controls, engineered solutions etc.)*

Ethical Gateway Questions   (Please answer the following questions.)

Does the study involve vulnerable participants or those unable to give informed consent? *(e.g. children, people with learning disabilities, your own students)*	Yes ☐ No ☒
Does the study require permission of a gatekeeper for access to participants? *(e.g. schools, self-help groups, residential homes, hospitals)*	Yes ☐ No ☒
Is it necessary for participants to be involved without consent? *(e.g. covert observation in non-public places)*	Yes ☐ No ☒
Does the study involve sensitive topics? *(e.g. obtaining information about sexual activity, substance abuse)*	Yes ☐ No ☒
Is blood, tissue samples or any other substances be taken from participants? *(e.g. blood, urine, stools, skin)*	Yes ☐ No ☒

Does the study involve intrusive interventions? *(e.g. The administration of drugs, hypnosis, physical exercise)*	Yes ☒ No ☐
Are financial or other inducements be offered to participants? *(With the exception reasonable expenses or small tokens of appreciation)*	Yes ☐ No ☒
Does the study investigate any aspect of illegal activity? *(e.g. drugs, crime, underage alcohol consumption or sexual activity)*	Yes ☐ No ☒
Will work reveal personally attributable confidential information (written, audio or video), or cause undue distress, degrade personal dignity, or infringe human rights? *(eg. Show characteristics of someone's personality, cause distressful emotions, participant will need to be stressed beyond what is considered normal for them, contacting people under threatening circumstances)*	Yes ☐ No ☒
Does the work involve, environmental issues? *(e.g. Relates to real life environmental judgements, such as climate change, species and habitat loss, and pollution.)*	Yes ☐ No ☒
Will the work present ethical problems for tutors, or the university, or participating companies or organisations? *(eg Will the work infringe intellectual property rights.)*	Yes ☐ No ☒
Are (non-human) animals involved with the work? *(e.g. Might the work inflict physical or psychological cruelty, pain, disfigurement or unnecessary restraint)*	Yes ☐ No ☒

If the answer to any of the ethical gateway questions above is "Yes", or if there are any other significant ethical issues, then further ethical consideration is required.
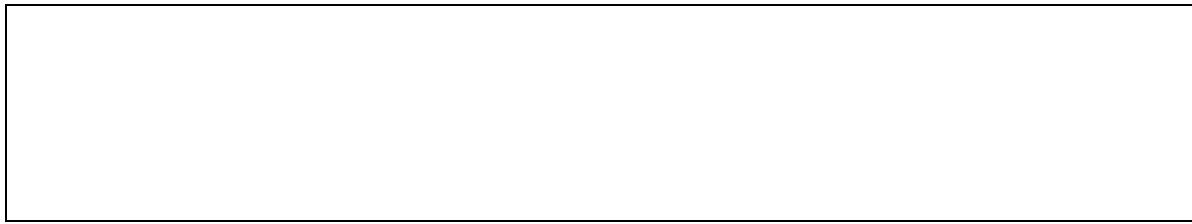
In any proposal involving human participants clear explanation of how informed consent will be obtained, how confidentiality will be observed, how the nature of research and the means of dissemination of the outcomes will be communicated to the participants must be provided.

Summarise below the ethical issues involved in the proposal and how these will be addressed.

Summary of Ethical Issues

Firstly, if anyone is involved in my project, I must tell them the purpose of our investigation, and potential risks, I must take the responsibility of potential accidents, I can not spread their private data for any uninformed purpose, I can not use any unethical techniques to force them to participate in our project.

Although, it is very unlikely for my project to have humans getting involved in, I should not unethically conduct our investigation.

Signed (student): HeWenXIao	Date: 2025-10-31
Signed (1st Supervisor): Olaoluwa Popoola	Date: 2025-10-31