Sheffield Hallam University

UREC 1 RESEARCH ETHICS REVIEW FOR STUDENT RESEARCH WITH NO HUMAN PARTICIPANTS OR DIRECT COLLECTION OF HUMAN TISSUES, OR BODILY FLUIDS.

All University research is required to undergo ethical scrutiny to comply with UK law. The University Research Ethics Policy (www.shu.ac.uk/research/excellence/ethics-and-integrity/policies) should be consulted before completing this form. The initial questions are there to check that completion of the UREC1 is appropriate for this study. The supervisor will approve the study, but it may also be reviewed by the College Teaching Program Research Ethics Committee (CTPREC) as part of the quality assurance process (additional guidance can be obtained from your College Research Ethics Chair[1]).

The final responsibility for ensuring that ethical research practices are followed rests with the supervisor for student research.

Note that students and staff are responsible for making suitable arrangements to ensure compliance with the General Data Protection Regulations (GDPR), for keeping data secure and if relevant, for keeping the identity of participants anonymous. They are also responsible for following SHU guidelines about data encryption and research data management. Guidance can be found on the SHU Ethics Website www.shu.ac.uk/research/excellence/ethics-and-integrity

Please note that it is mandatory for all students to only store data on their allotted networked F drive space and not on individual hard drives or memory sticks etc.

This form also enables the University and College to keep a record confirming that research conducted has been subjected to ethical scrutiny. Students should retain a copy for inclusion in their research projects, and a copy should be uploaded to the relevant module Blackboard site.

The form must be completed by the student and approved by supervisor and/or module leader (as applicable). In all cases, it should be counter-signed by the supervisor and/or module leader and kept as a record showing that ethical scrutiny has occurred. Students should retain a copy for inclusion in the appendices of their research projects, and a copy should be uploaded to the module Blackboard site for checking.

Please note that it may be necessary to conduct a health and safety risk assessment for the proposed research. Further information can be obtained from the University's Health and Safety Website https://sheffieldhallam.sharepoint.com/sites/3069/SitePages/Risk-Assessment.aspx

[1] College of Social Sciences and Arts – Dr. Antonia Ypsilanti (a.ypsilanti@shu.ac.uk)
College of Business, Technology and Engineering – Dr. Tony Lynn (t.lynn@shu.ac.uk)
College of Health, Wellbeing and Life Sciences – Dr. Nikki Jordan-Mahy (n.jordan-mahy@shu.ac.uk)

ARE YOU COMPLETING THE CORRECT FORM?

Does this study include collecting data or samples from human participants. YES/NO

Is the secondary data used in this study of a sensitive or contentious nature, or does it allow the identification of individuals or organisations (e.g., companies, school, councils, communities). YES/NO

If you have answered ***YES*** to either of these two questions you must complete a UREC2, 3 or 4 as appropriate.

1. General Details

Details	
Name of student	Muhammad Inam Tahir
SHU email address	c4030028@hallam.shu.ac.uk
Department/College	Computing, Sheffield Hallam University
Name of supervisor	Sir Richard Johnson
Supervisor's email address	richard.johnson@shu.ac.uk
Title of proposed research	Network Intrusion detection and prevention system
Proposed start date	20/6/25
Proposed end date	4/9/25
Brief outline of research to include, rationale (reasons) for undertaking the research & aims, and methods (max 500 words).	Intrusion Detection Systems (IDS) provide an enhancement in maintaining the security of modern networks. However, with the rapid evolution of cyber threats, especially zero-day and polymorphic attacks, traditional signature-based IDS solutions have become inadequate. In response, machine learning (ML)-based IDS models have gained traction due to their ability to learn from historical network behaviour and detect both known and unknown threats. Despite this progress, existing ML-based IDS models still face three critical challenges: a lack of adaptability to new and evolving attacks, limited explainability of their decisions (leading to distrust by security analysts), and high computational overhead that restricts real-time deployment in many environments. This research aims to design and implement a machine learning-based IDS that addresses these limitations within the context of standard enterprise and academic network infrastructures. The primary objective is to develop an IDS framework that is adaptive, explainable, and efficient for deployment in traditional computer networks. Adaptability will be achieved by integrating online or incremental learning mechanisms, enabling the system to update itself dynamically without retraining from scratch. For the prevention, use a machine learning model that will be optimized for efficiency using techniques such as feature selection, dimensionality reduction, and lightweight algorithms like logistic regression or decision trees, depending on the deployment context.

2. Research in External Organisations

Question	Yes/No
1. Will the research involve working with/within an external organisation (e.g., school, business, charity, museum, government department, international agency, etc.)?	NO
2. If you answered YES to question 1, do you have granted access to conduct the research? *If YES, students please show evidence to your supervisor. PI should retain safely.*	
3. If you answered NO to question 2, is it because: A. you have not yet asked B. you have asked and not yet received an answer C. you have asked and been refused access. *Note: You will only be able to start the research when you have been granted access.*	

3. Research with Products and Artefacts

Question	Yes/No
1. Will the research involve the use of specialist copyrighted documents, films, broadcasts, photographs, artworks, designs, products, programs, databases, networks, processes, existing datasets, or secure data?	Yes (Datasets)
2. If you answered YES to question 1, are the materials you intend to use in the public domain? *Notes: 'In the public domain' does not mean the same thing as 'publicly accessible'.* • *Information which is 'in the public domain' is no longer protected by copyright (i.e., copyright has either expired or been waived) and can be used without permission.* • *Information which is 'publicly accessible' (e.g., TV broadcasts, websites, artworks, newspapers) is available for anyone to consult/view. It is still protected by copyright even if there is no copyright notice. In UK law, copyright protection is automatic and does not require a copyright statement, although it is always good practice to provide one. It is necessary to check the terms and conditions of use to find out exactly how the material may be reused etc.* *If you answered YES to question 1, be aware that you may need to consider other ethics codes. For example, when conducting Internet research, consult the code of the Association of Internet Researchers; for educational research, consult the Code of Ethics of the British Educational Research Association.*	Yes
3. If you answered NO to question 2, do you have explicit permission to use these materials as data? *If YES, please show evidence to your supervisor.*	

Question	Yes/No
4. If you answered NO to question 3, is it because: A. you have not yet asked permission B. you have asked and not yet received and answer C. you have asked and been refused access. *Note: You will only be able to start the research when you have been granted permission to use the specified material.*	**A/B/C**

4. **Does this research project require a health and safety risk assessment for the procedures to be used?** (Discuss this with your supervisor)

☐ Yes
☒ No

If **YES** the completed Health and Safety Risk Assessment form should be attached. A standard risk assessment form can be generated through the Awaken system (https://shu.awaken-be.com). Alternatively if you require more specific risk assessment, e.g. a COSHH, attach that instead.

Insurance Check

The University's standard insurance cover will not automatically cover research involving any of the following:

i) Participants under 5 years old
ii) Pregnant women
iii) 5000 or more participants
iv) Research being conducted in an overseas country
v) Research involving aircraft and offshore oil rigs
vi) Nuclear research
vii) Any trials/medical research into Covid 19

If your proposals do involve any of the above, please contact the Insurance Manager directly (fin-insurancequeries-mb@exchange.shu.ac.uk) to discuss this element of your project.

Adherence to SHU Policy and Procedures

<table>
<tr><td colspan="2">Ethics sign-off</td></tr>
<tr><td colspan="2">Personal statement</td></tr>
<tr><td colspan="2">I can confirm that:
I have read the Sheffield Hallam University Research Ethics Policy and Procedures
I agree to abide by its principles.</td></tr>
<tr><td colspan="2">Student</td></tr>
<tr><td>Name: Muhammad Inam Tahir</td><td>Date:20/6/25</td></tr>
<tr><td colspan="2">Signature: Inam Tahir</td></tr>
<tr><td colspan="2">Supervisor ethical sign-off</td></tr>
<tr><td colspan="2">I can confirm that completion of this form has confirmed that this research does not involve human participants. The research will not commence until any approvals required under Sections 2 & 3 have been received and any health and safety measures are in place.</td></tr>
<tr><td>Name: Richard Johnson</td><td>Date:20/02/2025</td></tr>
<tr><td colspan="2">Signature: Richar Johnson</td></tr>
<tr><td colspan="2">Independent Reviewer ethical sign off (if required to permit publication of findings with supervisor co-authorship).</td></tr>
<tr><td>Name:</td><td>Date:</td></tr>
<tr><td colspan="2">Signature:</td></tr>
</table>

Please ensure that you have attached all relevant documents. Your supervisor must approve them before you start data collection:

Relevant Documents	Yes	No	N/A
Research proposal if prepared previously	☐	☐	☒
Any associated materials (e.g., posters, letters, etc.)	☐	☐	☒
Health and Safety Risk Assessment Form	☐	☐	☒