CSC3031 Research and Project Skills: Ethics in Computing Projects

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Announcements

- Example Presentations and Proposals now in Canvas
- You should all know who your supervisor is (tell us if not)
- It is **up to you** to contact your supervisor
- Guest lecture tomorrow (Friday, 09:30):
  Dr Paulius Stankaitis http://stankaitis.uk/
  Life as a newly qualified research scientist
  Trustworthy autonomous systems, including autonomous vehicles

Why ethics?

https://www.sli.do/
#992424

- Ethics guide how we act in certain situations
- A lot of law is based on ethical principles
- Ethics guide our answers to questions to such as:

  What should I do? What should we do? What is appropriate? What goals should we pursue? What laws should we have? What collective behaviour should we all pursue?

What is ethics?

- Ethics is more than what we are asked to do
- Ethics is about what we think is right
- Unwritten rules of behaviour matter – we sometimes behave differently depending on social situations
- We are not just concerned with whether we might get caught doing the wrong thing, but how we (and others) feel about it and the impact our actions might have.

Ethics is not simple

Not always clear distinction between ‘good’ or ‘bad’

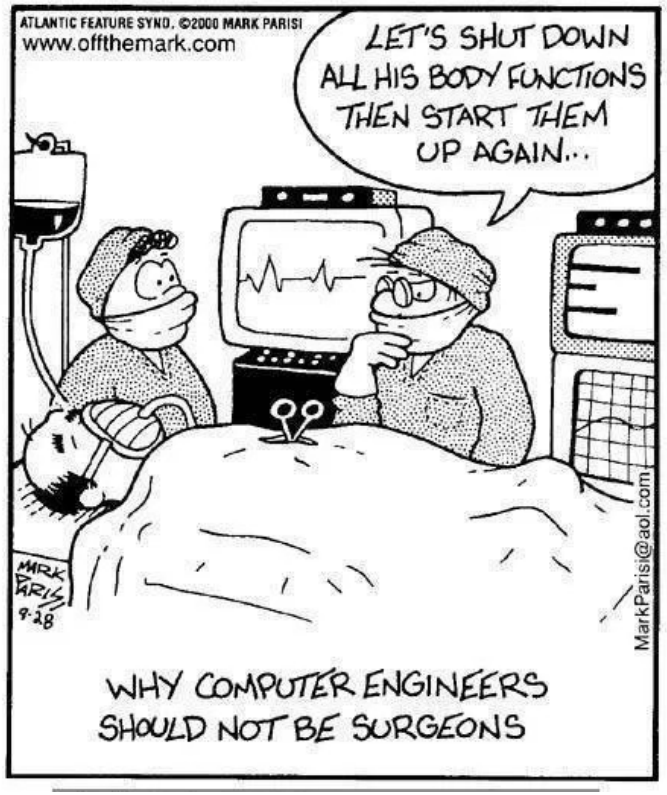
- Is bribery ethical if it creates hundreds or thousands of jobs?
- In medicine, using an experimental unapproved drug might save the life of someone who might otherwise die...
- In research, performing an experiment which causes some discomfort to an individual, might give valuable data which advances the field by many years
- Where do we draw the line between what we justify and what we don’t?
- Can the ends justify the means?

Ethics informs codes of conduct

Personal code of ethics

Professional codes of conduct:

- Public and civil service
- Social work
- Health and Social Care
- Police
- Education
- Professions including computing…



e.g. ACM Code of Ethics and Professional Conduct

A computing professional should:

- Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.
- Avoid harm.
- Be honest and trustworthy.
- Be fair and take action not to discriminate.
- Respect the work required to produce new ideas, inventions, creative works, and computing artifacts.
- Respect privacy.
- Honour confidentiality.

Ethics in research

Ethics should be considered in:

- Doing the research
- Interacting with research participants
- Presenting and sharing the results of the research

Researchers have responsibilities to:

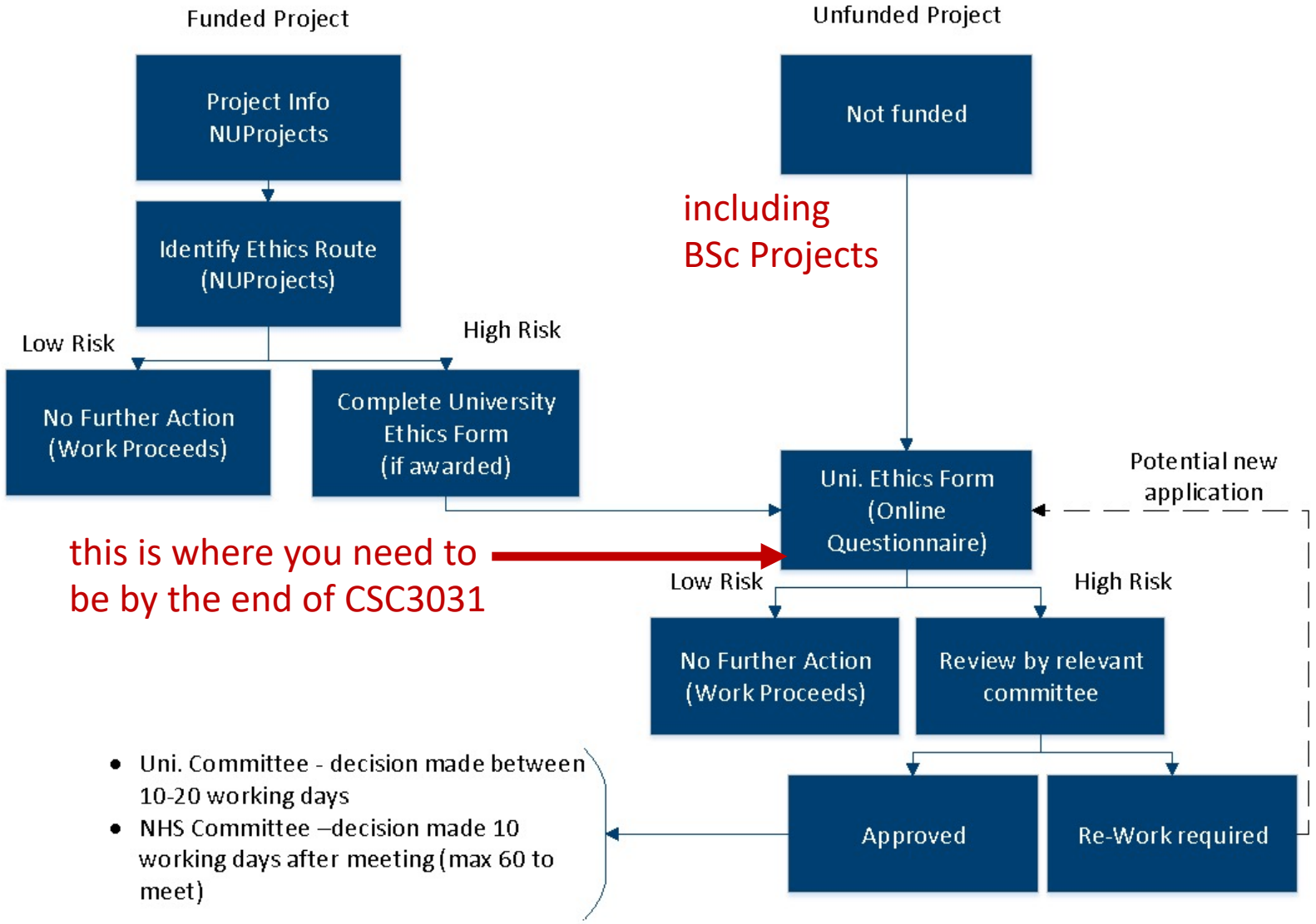
- Participants in their research
- Their colleagues (and themselves)
- Wider society

NU Code of Good Practice in Research

Newcastle University's Code of Good Practice in Research includes:

- Being honest and acting with integrity
- Avoiding and reporting research misconduct
- Being open in sharing findings (as far as possible)
- Following guidance from professional bodies
  (e.g. a research funder, the NHS, British Computing Society)
- Documenting all results and preserving the primary data (making it useful to others)
- Publishing the results and data
- Acknowledging contribution and conflicts of interest
- Obtaining ethical approval for all projects (**including BSc student projects**)…

Ethical Approval at Newcastle University



- Online form with preliminary questions to identify if projects are ethically low- or high- risk
- Further questions if high risk, need for further review and approval

Ethical concerns in computing projects?

- Suggest a computing projects (Sli.do)
- What might the ethical concerns be?

Example research topics/aims/questions

1. Investigate how to reducing the mental health impacts of social media through modelling and application design.
2. Implement a web system that presents local air quality data from the Urban Observatory to the general public in a way to keep them engaged.
3. Identify the optimal technique/policies for allocation of host resources in the cloud in a practical manner.
4. How can an interactive referential website enable people to learn computer programming languages using techniques from modern language learning?

Ethically high risk

Your project could be ethically high risk if it:

- Involves animals
- Involves NHS patients or service users, or human tissues
- Involves human participants (in some cases…)
- Involves sensitive or personal data
- Has environmental impacts beyond permissible levels
- Is conducted outside the UK

Completing the online ethics form

- https://newcastle-ethics.limequery.com/

Ethical considerations

In writing your synopsis – your motivation should be apparent

- Show that the research (e.g. experiment) is useful and not just arbitrary.
- For example, a literature review and defensible statistical method to address a well-defined hypothesis or problem

If you have to submit full ethics (and in your project planning), be prepared to:

- Break down, step by step, what you will do, with who and what data and for how long
- Explain how/where you will obtain data and recruit participants
- Provide copies of questionnaires and other resources
- Describe all software and data repositories being used

Involving human participants - does the research involve:

a. The study involves children or other vulnerable groups; including those who are relatively or absolutely incapable of protecting their own interests, or those in unequal relationships e.g. participants who are subordinate to the researcher(s) in a context outside the research?

b. The study requires the co-operation of a gatekeeper defined as someone who can exert undue influence) for initial access to the groups or individuals to be recruited e.g. students at school, members of a self-help group, or residents of a nursing home? NB. The IoN & School of Psychology volunteer pools are not considered gatekeepers in this case.

c. It is necessary for participants to take part in the study without their knowledge and consent e.g. covert observation of people in non-public places?.

d. Deliberately misleading participants in any way?

e. Discussion of sensitive topics e.g. sexual activity or drug use?*

f. The administration of drugs, placebos or other substances (e.g. food substances, vitamins) to the study participants.

g. Invasive, intrusive or potentially harmful procedures of any kind?*

h. Obtaining blood or tissue samples?*

i. Pain or more than mild discomfort?

j. Psychological stress, anxiety, harm or negative consequences beyond that encountered in normal life?

k. Prolonged or repetitive testing i.e. more than 4 hours commitment or attendance on more than two occasions?

l. Financial inducements (other than reasonable expenses and compensation for time)?

Then it is high risk!

Involving human participants – ethical principles

- Even if low risk you should still follow ethical principles
- E.g. recruiting participants, recording participants, using recordings and data…
- You **must obtain informed consent**:
  - Provide a Participants Information Sheet
  - Complete Consent Forms

Involving human participants – ethical principles

Recruiting participants:

- How will you find participants?
- Will they feel pressured (coerced) to participate?
- Will the participants put what they think you want to hear?

Safety:

- Are you doing everything possible to reduce risk to participants?
- Are you making sure you – the researcher – is safe?
- What will you do if a participant has a problem?

Participants Information Sheets

See Ethics Toolkit > Human Participants > Informing Participants

Clear, simple, non-technical descriptions.

It should include:

- The research study title, and the principal investigator's contact details
- An invitation to participate
- The terms for withdrawal

AND should answer the following:

- What is the purpose of the research?
- What does taking part involve?
- Why has the participant been invited to take part? (What are the inclusion/exclusion criteria?)
- What are the possible benefits of taking part?
- What procedures are in place to minimise any disadvantages and risks?
- Who is the sponsor and the data controller for the research?
- Has the study received ethical approval?
- Who should the participant contact for further information relating to the research?
- Who should the participant contact to file a complaint?
- What information will be collected and who will have access to the information collected?
- How will the data be used and stored during and after the study?

METRO FUTURES

Metro Futures 2020: Participant Information Sheet

You are invited to take part in research that collects your thoughts on the design of future Tyne and Wear Metro trains. Before you decide whether to participate it is important you understand what the research is, and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask one of the researchers if there is anything that is not clear or if you would like more information.

This study is being led by Simon Bowen and Alexander Wilson from Newcastle University's Open Lab.

About Metro Futures

The Tyne and Wear Metro is a vital part of commuter, leisure and visitor travel for many people in North East England. It is the busiest urban rail system in the UK outside London, carrying around 40 million passengers a year. Although the Metro has always stood for innovation, after nearly four decades its train fleet will soon need to be replaced.

Nexus, the public body which owns and manages Metro, has been awarded funding to renew their train fleet. Stadler have been appointed as the train manufacturer. As part of the process, Stadler have designed Metro trains that address many of the suggestions raised during a previous public consultation Open Lab ran in 2016.

Metro Futures 2020 aims to involve people in designing the final options for the trains, and to provide people with an opportunity to provide their views on the new design. This new train fleet will be around for decades to come and Nexus wants to ensure its design reflects the wants and needs of people across the community, and throughout their lives.

To do this, Nexus has partnered with Open Lab at Newcastle University to work with people across Tyne and Wear to finalise the design of the new Metro trains.

What is the project's purpose?

The project aims to understand your thoughts on the new Metro trains. We are working with Nexus to collect people's views on the proposed design. To do this there are different ways you can become involved.

Why have I been chosen?

METRO FUTURES

You have been chosen as you've expressed an interest in sharing your thoughts on Metro, have been identified by either Nexus or the researchers in having a vital understanding of Metro, or have arrived here from one of the links we have previously shared.

Do I have to take part?

Participation is entirely voluntary. There is no exaptation that you will participate, and you are free to withdraw from the research at any time. You do not have to give a reason. To do so, please contact us (details below).

What will happen if I take part?

You will be asked to give your thoughts on the design of Metro trains by choosing an online activity that suits how involved you want to be – there are methods that allow you to give your thoughts quickly, and there are others that are more involved. You can choose whether you want to do any, some, or all of these. Any activities you do undertake make a useful contribution to the project. Your comments will be anonymised (your name will be removed, as well as any personally identifiable information) and all comments will be passed to Nexus.

What are the disadvantages of taking part?

Participating in the research is not anticipated to cause you any disadvantages or discomfort. The potential physical and/or psychological harm or distress will be the same as any experienced in everyday life. Please be aware that some of the online activities may require a good internet connection and/or use data allowance.

What are the possible benefits of taking part?

We hope that the design work we do together will make sure the future Metro trains fit the needs of people across Tyne and Wear for many years to come. We also hope that you will benefit through having a direct input into Metro's future, and build your confidence and experience as a result. We hope to benefit as researchers in working with you in learning how to better enable people to influence the design of public services, such as transport, using the tools we have created.

You'll get to explore the future design of the Metro, and get a first look at the Metro trains. You will be able to give your thoughts on Metro train design, and we will feed this back to Nexus.

What information will you collect?

METRO FUTURES

On the Metro Futures website, we will collect your responses to questions about the new trains. We will record online workshops (audio and video) which will then be transcribed with your name and any other personally identifiable information removed. We will only collect personally identifiable information (your email address) if you are interested in being involved in later research. No personally identifiable information will be published. This information will be stored at Newcastle University on secure servers.

What will happen to the results of the research project?

The results will be used to inform the future design of the Metro. These results will be given to Nexus in a report. Open Lab may also publish the results as part of academic papers. You will not be personally identified in any reports or publications.

What happens if I no longer want to take part?

You can stop taking part in the research at any point, without giving reasons. We respect your decision and you will not be questioned on why you don't want to take part.

Contacts for further information

Dr. Simon Bowen, Open Lab, Newcastle University, UK. Tel: 01912084630. Email: simon.bowen@ncl.ac.uk

Dr. Alexander Wilson, Open Lab, Newcastle University, UK. Tel: 01912084630. Email: alexander.wilson@ncl.ac.uk

Thank you for agreeing to take part in this study. Your contribution is very much appreciated.

Voluntary Consent

- Participants should take part voluntarily, without coercion or undue influence
- Participants should have time to read the information for participants document, and ask questions
- Sign a consent form - a contract between the participants and investigator.
- Usually signed by both parties (on paper, or electronic)
- Verbal consent is possible (in exceptional cases)
- A consent form should ascertain…

		Please initial box to confirm consent
1.	I confirm that I have read the information sheet dated *[insert date]* (version *[insert version]*) for the above study, I have had the opportunity to consider the information, ask questions and I have had any questions answered satisfactorily.	
2.	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, *[without my medical care or legal rights being affected]*. I understand that if I decide to withdraw, any data that I have provided up to that point will be *[specify whether data will be omitted or included].*	
3.	I consent to the processing of my personal information *[specify what personal information will be collected]* for the purposes of this research study, as described in the information sheet dated *[insert date]* (version *[insert version]*).	
4.	I consent to my *[anonymised/pseudonymised]* research data being stored and used by others for future research.	
5.	I understand that my research data may be published as a report.	
6.	(If appropriate) I consent to the retention of my personal information *[specify what personal information will be collected]* for X weeks, for the purpose of being re-contacted.	
7.	(If appropriate) I understand that my research data may be looked at by individuals from *[insert company/organisation/institution name(s)]*, where it is relevant to my taking part in this research.	
8.	(If appropriate) I consent to being *[audio and/or video]* recorded and understand that the recordings will be *[specify storage procedure: destroyed within X weeks after the data has been collected / destroyed immediately after transcription and/or stored anonymously on password-protected software and used for research purposes only]*. (If appropriate) I understand that being audio and/or video recorded is optional and therefore not necessary for my participation in this research.	
9.	I agree to take part in this research project.	
	Participant _____ _____ _____ *Name of participant* *Signature* *Date*	
	Researcher _____ _____ _____ *Name of researcher* *Signature* *Date*	

See the example Consent Form in the Ethics Toolkit

Sensitive and personal data – does the research involve?

a. The study involves sharing of sensitive or personal data outside the European Economic Area.

b. The study involves collection or analysis of sensitive data which will be identifiable within the project outputs and could potentially cause harm.

c. The study involves collection or analysis of personal data without explicit consent.

d. The study involves collection or analysis of information covered by the Official Secrets Act 1989, Terrorism Act 2006, commercial contract or licence?

e. The study involves the collection, viewing or dissemination of materials which could be considered; extremist, sensitive, or terrorism related?

Then it is high risk!

Ethical use of data in your research

Think about what data is involved in your project

See Ethics Toolkit > Data (> Governance Considerations for Research Data)

- What data will be used, created, stored?
- How is this data going to be stored, for how long*, accessible to who?

Strict data collection handling laws in place and should be followed - GDPR

*Newcastle University keeps research data for a minimum of 10 years (you don't have to…)

Help with data management

Newcastle University's Research Data Management Policy includes:

1. Producing a data management plan
   (could be helpful in planning your project)
2. Depositing research data in a public repository (e.g. https://data.ncl.ac.uk/)
   (not needed for BSc projects, more for funded research)

See Writing a Data Management Plan (includes link to DMP online tool)

Keeping BSc project data on Newcastle University file stores (e.g. SharePoint, OneDrive) is usually sufficient.

Example research topics/aims/questions

1. Investigate how to reducing the mental health impacts of social media through modelling and application design.
2. Implement a web system that presents local air quality data from the Urban Observatory to the general public in a way to keep them engaged.
3. Identify the optimal technique/policies for allocation of host resources in the cloud in a practical manner.
4. How can an interactive referential website enable people to learn computer programming languages using techniques from modern language learning?

Summary

You **must submit** a University Ethics Form to pass CSC3031 (although it carries no marks). So:

- Identify any potential ethical considerations with your supervisor
- Submission deadline is the same as your project proposal (25 February) to give time to do this
- Aim to keep projects ethically low risk. If you are unsure, talk to your supervisor, theme lead, and Simon and John as soon as possible.
- If you are recruiting participants ('users') you must ensure informed consent via a Participants Information Sheet and Consent Forms
- You may find it useful to write a data management plan.

Questions? Further Reading

- Dawson, (2015) Projects in Computing and Information Systems - Chapter 2, section 2.5.1 pp 38-40
- Newcastle University Ethics Forms and Processes (includes the link to the online ethics form you must complete)
- Newcastle University Ethics Toolkit, Newcastle University Code of Good Conduct in Research
- Association for Computing Machinery (ACM) Code of Ethics and Professional Conduct
- Ethical Principles (Economic and Social Science Research Council)