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"It's only a computing project – so there can't be any ethical issues. . . "

Conference or Workshop Item

oro.open.ac.uk

It's only a computing project…

… so there *can't* be any ethical considerations….?

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What got me started

Search engine optimization

NO ethical concerns….

- A commercially-funded project is seeking to understand how to optimise web searches

- It is looking for patterns in search data anonymised to hashes of users' IP addresses

- Of course, anonymization is fallible…

- … especially if the sponsor actually issued the IP addresses…

- … and just happens to be very interested in how to sell people more stuff they don't need.

Search engine optimization

NO ethical concerns….

- A government-funded project is seeking to understand how to optimise web searches

- It is looking for patterns in search data anonymised to hashes of users' IP addresses

- Of course, anonymization is fallible…

- … especially if the government actually issued the IP addresses…

- … and just happens to be particularly paranoid about which of its citizens is looking for what.

12/01/18

Motivation

My background

- 24 years leading undergraduate computing curriculum delivery
  - At Surrey, then The Open University
- BCS Academic Accreditator
- External Examiner
- BCS Chartered professional
- BCS Chartered Membership Assessor (CITP/CEng/CSci)

The dreaded LSEPI

Legal, Social, Ethical and Professional Issues

- Required to be "addressed" in accredited degrees
- Sometimes a little contrived:
    - An optional, non-assessed module
    - "embedded across the curriculum"
        - But with neither assessment nor evidence
    - A (small) part of an assessed module
    - A small non-assessed component of the project module
    - "ethics approval" for projects involving human participants
    - An assessed component of the project module, but completely separate from the project itself
    - A compulsory aspect of all projects, reflected in the report

Chartered membership assessment

- "application of relevant codes of conduct" standard discussion item in professional interview
- Clearly not always at the forefront of candidates' thinking
- And that's ANY relevant code of conduct…
  - … but this is a **professional** interview!
- Often scratch around to think of something
- Strangely reminiscent of the coverage of LSEPI…

Relevant Ethics

The scope of "Ethics"

- Human/Animal/Student participants

- Honesty and Integrity

  - Academic (mis)conduct and (mal)practice

    - Legality

    - Fraud

    - Public Interest

    - Bribery & Corruption…!

- Consequences

Ethical Principles for a "professional"

- Duty of care

- Responsibility for consequences

Ethical Principles for a "professional"

- Duty of care
  - Could anything/anyone be adversely affected by doing this project?

- Responsibility for consequences
  - Could anyone take the deliverables from this project and (ab)use them to affect anybody/thing?

Ethical Principles for a "professional"

- Duty of care
  - Could anything/anyone be adversely affected by doing this project?

- Responsibility for consequences
  - Could anyone take the deliverables from this project and (ab)use them to affect anybody/thing?

- Not about stopping projects – it's about getting people to think about possible intended/unintended consequences

What does our professional body (BCS) say?

BCS Code of Conduct

Public Interest

a. have due regard for public health, privacy, security and wellbeing of others and the environment.

b. have due regard for the legitimate rights of Third Parties.

c. conduct your professional activities without discrimination […]

d. promote equal access to the benefits of IT and seek to promote the inclusion of all sectors in society wherever opportunities arise.

BCS Code of Conduct

Professional Competence and Integrity

a. only undertake to do work or provide a service that is within your professional competence.

b. NOT claim any level of competence that you do not possess.

c. develop your professional knowledge, skills and competence on a continuing basis, maintaining awareness of technological developments, procedures, and standards that are relevant to your field.

d. ensure that you have the knowledge and understanding of Legislation* and that you comply with such Legislation, in carrying out your professional responsibilities.

e. respect and value alternative viewpoints and, seek, accept and offer honest criticisms of work.

f. avoid injuring others, their property, reputation, or employment by false or malicious or negligent action or inaction.

g. reject and will not make any offer of bribery or unethical inducement.

BCS Code of Conduct

Duty to Relevant Authority

a. carry out your professional responsibilities with due care and diligence in accordance with the Relevant Authority's requirements whilst exercising your professional judgement at all times.

b. seek to avoid any situation that may give rise to a conflict of interest between you and your Relevant Authority.

c. accept professional responsibility for your work and for the work of colleagues who are defined in a given context as working under your supervision.

d. NOT disclose or authorise to be disclosed, or use for personal gain or to benefit a third party, confidential information except with the permission of your Relevant Authority, or as required by Legislation.

e. NOT misrepresent or withhold information on the performance of products, systems or services (unless lawfully bound by a duty of confidentiality not to disclose such information), or take advantage of the lack of relevant knowledge or inexperience of others.

BCS Code of Conduct

Duty to the Profession

a. accept your personal duty to uphold the reputation of the profession and not take any action which could bring the profession into disrepute.

b. seek to improve professional standards through participation in their development, use and enforcement.

c. uphold the reputation and good standing of BCS, the Chartered Institute for IT.

d. act with integrity and respect in your professional relationships with all members of BCS and with members of other professions with whom you work in a professional capacity.

e. notify BCS if convicted of a criminal offence or upon becoming bankrupt or disqualified as a Company Director and in each case give details of the relevant jurisdiction.

f. encourage and support fellow members in their professional development.

A lot more to think about than human participants…

- Slightly different wording, similar sentiments in ACM, IET codes of conduct

- Best opportunity to *demonstrate* awareness –
  - In the significant piece of individual work AKA the project
  - Not difficult – suggest questions to ask
  - Not seeking to restrict projects – just making students aware of possible consequences

- Of course, ethics do follow culture
  - Freeland, A: "Cultural Differences"
    - ITNow (BCS) – Autumn 2014 pp 24-25

The OU approach

Advice for u/g project students

- It is not sufficient to say 'This is only an imaginary project so legal, social, ethical and professional issues don't apply' as they almost certainly do, because very few projects do not potentially impact upon people or wider society. In the unlikely situation where they really do not apply, you still need to discuss the issues explaining why they are not relevant.

Some basic "ethics" questions

- What is the point of solving this problem? What is the contribution to society? Is any social impact a good or potentially bad thing? How could any bad impacts be avoided?

- Who will use the results of your project and what impact could it have on them and on others?

- Who will be affected when you are solving this problem?

- If your project were to be completed to scale in a real-world context, who would be affected? Might this be potentially good or harmful to these people (or to the communities/businesses of which they are a part)?

- What could happen if the outcome of your project becomes extremely successful/influential? Could it have any impact upon society or the way people work? Would this be a good or potentially bad thing? How could any bad impacts be avoided?

- Could private data be collected? Could this data conceivably be misused in some way? How could this be avoided?

12/01/18

And more questions…

- Could people be tracked? – are there privacy issues? Does this matter? How could this be avoided?

- Could the outcome of your project conceivably be misused in some way, perhaps in conjunction with something else which may not even have been developed yet?

- If you are developing a program and it contains unexpected errors in logic or security holes could this have any bad impacts? What about if it were developed to scale and still contained these?

- Are there legal issues relating to data protection, computer misuse or freedom of information?

- Are there any relevant legal issues not just in the context it is being used now, but if it were to be generalised or re-used in a different context?

- Does your project contribute towards a larger development in technology that leads somewhere you feel may or may not be for the good of society?

Spreading the word

A professional crusade?

- Introduced explicit assessment at OU

- Run sessions for postgrad students

- Challenged institutions during accreditation visits

- Commended to institutions where I have been an external examiner
  - And shared with fellow examiners

- This conference

- Lobbied (a bit) BCS Accreditation and Exemption Committee

- Open to other suggestions/opportunities

And finally

It's just a (real-time) computing problem…

- The project requires real-time processing of multiple sensor inputs, from which a current position and velocity may be calculated, and proximity to other objects established.

- The principal outputs, also in real time, are corrections to velocity to achieve a specified trajectory.

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- For an autonomous road vehicle

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- The principal outputs, also in real time, are corrections to velocity to achieve a specified trajectory.

- For a cruise missile

AR- Assisted Landmark recognition

… my own research

- Mobile devices can display pictures of landmarks …

- … an interesting question is how best to display them …

- … to help us to recognise them …

- … and navigate towards them.

AR- Assisted Landmark recognition

… my own research

- Mobile devices can display pictures of targets…

- … an interesting question is how best to display them …

- … to help us to recognise them …

- … and aim guns at them.

Thank you for listening

Any comments or questions?