Dependability & Ethics

The Case of the Killer Robot

Nietzsche “What does your conscience say? You shall become what you are”
“I don’t think about the meaning of it all. I say, just plug in your damn guitar and make some noise” Paul Westerberg

Computers & Ethics

- Why does computer design and use merit special ethical attention?
- Computers permit a novel range of behaviours that bring ethical principle into force – eg surveillance, privacy etc
- Complexity of computer systems makes the consequences of actions difficult to predict – (old ethical argument about science?) – can people be blamed for not being omniscient?
- Need for technical skills and knowledge – ethical debate is framed by what is technically possible – but – paradoxically - it is unlikely that there will be technical solutions to ethical problems

Dependability & Ethics

- Dependability – issues of responsibility, safety, security, risk, trust – can be seen as ethical issues
- Ethics and positive action - not doing something is not a morally worthwhile option..?
- Choosing which ethical principles to defend..

Dependability & Philosophy

- Philosophy & Ultimate questions – the meaning of life, good and evil, personal identity, knowledge and certainty… etc
- Philosophy does not provide answers – philosophy as therapy – clearing the fog of confusion
- Ultimate questions – Plato, Bilbo Baggins and Miss Nude America (and Groundhog Day)
- **Why be moral?**

Philosophical bases for morality

- Teleological v deontological approaches
- Teleology – consequentialism – variants – self-interest, prudentialism (Equus?), contractarianism (Hobbes), utilitarianism (Mill), virtue, altruism…
- Deontology – notion of essential rightness or wrongness regardless of consequences – eg basic human rights
  - Duty based ethics – fidelity; reparation; justice; non-injury; beneficence etc
  - Rights based ethics – knowledge, privacy, property
- Kant & the categorical imperative – morality & logical consistency

Moral Theories & Ethical Principles

- utilitarianism - Mill
  - an act can be judged right or wrong according to whether or not it maximises happiness and minimises misery - the greatest good of the greatest many
- arguments against
  - problems of calculation - predicting consequences; comparing/measuring happiness
  - moral objections - the appeal to 'ultimate values' - deontology=the idea that certain actions are intrinsically right/wrong regardless of the end they might serve
- autonomy - Kant
  - the moral right of an individual to determine/decide her own fate
  - "to respect a person as an autonomous being is to take into account in one's conduct that he/she has an autonomous nature, that he/she is self-governing and self determining, that he/she has desires, feelings and reason" (Downie & Calman 'Healthy Respect')

Ethical Responsibility & The Design Cycle

- Responsibilities as Researchers and Responsibilities as Producers-Workers
- Ethics as an academic and a practical concern
- Ethical issues and stages of research and development
  - Initial research - Design - Deployment - Evaluation

Research & Ethics

- “Whether anyone was harmed or inconvenienced by the research is the basic ‘minimum question’ of research ethics; did the researchers act responsibly, to leave the world no worse a place by reason of their investigation?” Sapsford & Abbott1992:25-26
- “We’re so preoccupied with defending our privacy against insurance investigators, dope sleuths... that we overlook the social scientists behind the hunting blinds who’re also peeping into what we thought were our most private and secret lives. But there they are, studying us, taking notes, getting to know us, as indifferent as everybody else to the feeling that to be a complete human being involves having an aspect of ourselves that’s unknown” von Hoffman, The Washington Post.

Codes of Ethics

- For Doctors: The Oath of Hippocrates
  - "I will follow that system or regimen which, according to my ability and judgement, I consider for the benefit of my patients...I will give no deadly medicine to anyone if asked...into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain...from the seduction of females or males.."
- For Social Science Researchers:
  - British Sociological Association 'Statement of Ethical Principles and their Application to Sociological Research'
  - British Psychological Society 'Ethical principles for Conducting research with Human Participants'

- “Just because I’m a sociologists doesn’t automatically mean I’m an imbecile” John Sladek
- “... the sociologist should subscribe to the doctrine of ‘informed consent’ on the part of subjects and accordingly take pains to explain fully the object and implications of his research to individual subjects...”
- “In all circumstances, investigators must consider the ethical implications and psychological consequences for the participants in their research. The essential principle is that the investigation should be considered from the standpoint of all participants; foreseeable threats to their psychological well-being, health, values or dignity should be eliminated....”

Questionable Practices in Social Research

- 1. Involving people without their knowledge or consent
- 2. Coercing them to participate
- 3. Withholding information about the true nature of the research
- 4. Deceiving the participant
- 5. Inducing participants to commit acts diminishing their self-esteem
- 6. Violating rights of self-determination
- 7. Exposing participants to physical or mental stress
- 8. Invading privacy
- 9. Withholding benefits from some participants
- 10. Not treating participants, fairly or with respect.

Computing Codes of Ethics

- The ACM Code
- Series of Kantian Moral Imperatives
- General Moral Imperatives – (motherhood & apple pie?)
  - Contribute to society & human well-being
  - Avoid harm to others
  - Be honest and trustworthy
  - Be fair and take action not to discriminate
  - Honour property rights including copyrights and patents
  - Give proper credit for intellectual property
  - Respect the privacy of others
  - Honour confidentiality

- Specific Professional Responsibilities
  - Strive to achieve the highest quality, effectiveness and dignity in both the process and the products of professional work
  - Acquire and maintain professional competence
  - Know and respect existing laws pertaining to professional work
  - Accept and provide appropriate professional review
  - Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks
  - Honour contracts, agreements and assigned responsibilities
  - Improve public understanding of computing and its consequences
  - Access computing and communication resources only when authorised to do so

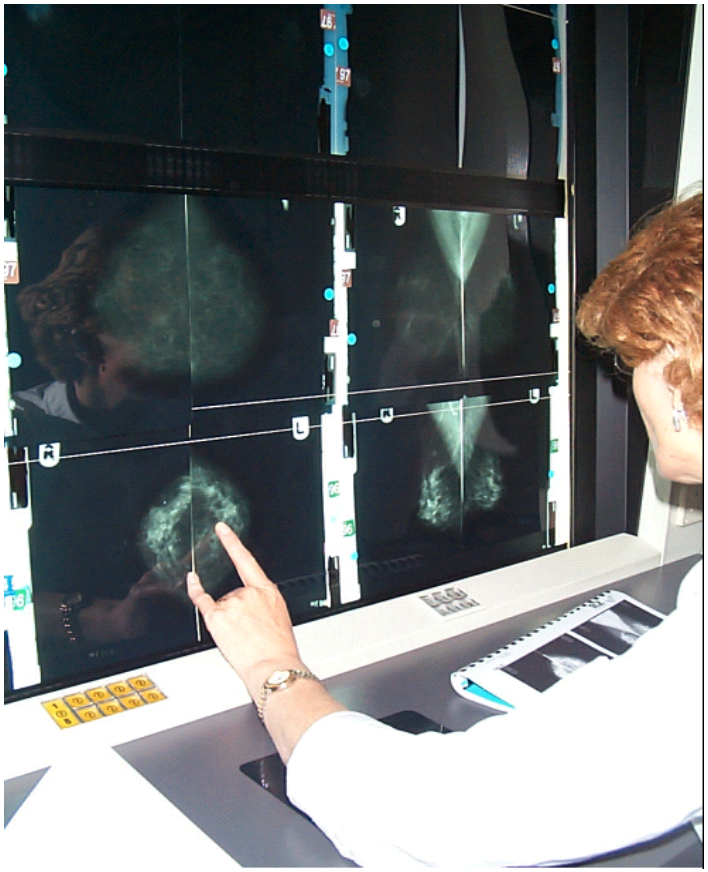
- Leadership Imperatives
  - Articulate social responsibilities of members of an organisational unit and encourage ful acceptance of those responsibilities
  - Manage personnel and resources to design and build information systems that enhance the quality of working life
  - Acknowledge and support proper and authorised uses of an organisation's computing and communications resources
  - Ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements. Later the system must be validated to meet requirements
  - Articulate and support policies that protect the dignity of users and others affected by a computing system
  - Create opportunities for members of the organisation to learn the principles and limitations of computer systems
- Weider & the 'convict code' – codes as resources, forms of 'accountability'

Mundane Ethics

Doing The Best You Can

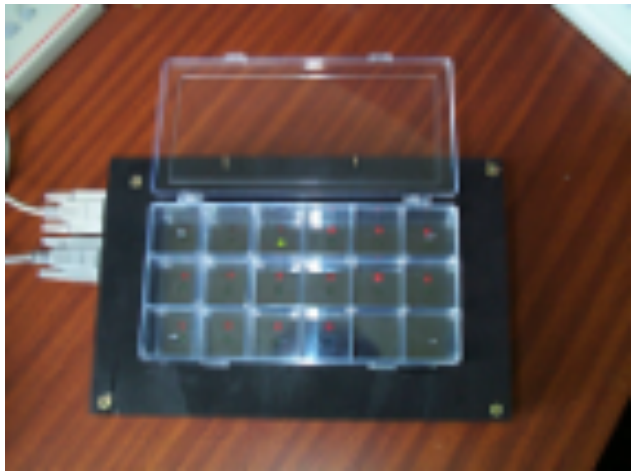
Practical Ethics: the bureaucratic and the bogus

- Bureaucratic - ethical protocols
- ‘Bogus’
  - Informed consent
  - Anonymity
  - Privacy
- Moral cowardice as an ethical principle



Ethical Issues in Design and Deployment

- Understanding the consequences of interventions - care pathways, human rights, privacy etc
- Moral cowardice again - research and real world consequences - trying not to kill people
- Exploitation, the ‘rape’ model of research and deployment issues



Doing The Right Thing

- Practical ethics - trying to behave like a decent human being…
- ..whilst covering your ass...
- Don’t be stupid
- Web Sites
  - European Group on Ethics in Science and New Technologies
  - http://europa.eu.int/comm/european_group_ethics/index_en.htm
  - http://onlineethics.org/

The Killer Robot

- What are the facts?
- Who are the stakeholders? – understanding the network of relationships..
- What are the ethical issues? – reliability; honesty and trust; conflicts of interest; etc
- How are these issues addressed by ACM guidelines? Ethical theory? The law? Etc
- The Killer Robot & Informal guidelines – how might we intuitively 'know' if something was wrong?
  - The shusher test; the mother test; the TV test; the smell test; the other persons's shoes test; the market test… etc…but?

Silicon Valley Programmer Indicted for Manslaughter

- The facts?
- death of Bart by robot programmed by Randy – what other facts are important?.. Was the robot being used ‘normally’ etc..
- Stakeholders?
- Randy, Bart’s family; the companies; others?
- Ethical Issues?
- legal responsibility .. (moral responsibility?) why manslaughter and not murder? – issues of intent; why Randy and not Cybernetics inc? – issues of contractual responsibility ; why Randy not Silicon Techtronics? – issues of responsibility; safety
- How might the ACM code address this?
- Avoid harm, consider potential damage??; excellence in quality?
- How might informal codes be of relevance – what ‘smells’ here?

Developers of ‘Killer Robot’ Worked Under Enormous Stress

- The Facts?
- project behind schedule; management hired new programmers; problematic project leader? Philosophy of software reliability – does not need to be 100% reliable..
- Stakeholders?
- Randy, Ray Johnson project leader; the software team; Bart’s family; the companies; others?
- Ethical issues?
- ethics and reliability – how ethical is it to release software that is not 100% reliable (in normal use?); ethics v commercial responsibilities – testing etc. (thalidomide.); leaders responsibilities to their teams...
- How might the ACM code address this?
- Thorough evaluations? Maintain professional competence?; manage personnel..but .. Honouring contracts?
- How might informal codes be of relevance – what ‘smells’ here?

‘Killer Robot’ Programmer Was Prima Donna

- The facts?
- psychologists analyses Randy’s personality; team members interviewed; views on Randy’s personality & team dynamics
- Stakeholders?
- Randy, Bart’s family; the company; the team; psychologists..
- Ethical issues?
- ethical issues in team building and team dynamics; ethics of personality testing; confidentiality and anonymity; leaders’ responsibilities to their teams..personalisation of complex problems.. Ad hominem arguments..
- How might the ACM code address this?
- Dignity in the process and products of professional work? Professional review?
- How might informal codes be of relevance – what ‘smells’ here?

‘Killer Robot’ Project Mired in Controversy Right from the Start

- The facts?
- dispute over appropriate method of development – the waterfall method
- Stakeholders?
- Randy, Bart’s family; the company; the team; computer scientists, project management; design community etc..
- Ethical issues
- responsibility – the place of the user in development; responsibility and technical limitations; leadership responsibility
- How might the ACM code address this?
- Strive to achieve quality? Various leadership imperatives..
- How might informal codes be of relevance – what ‘smells’ here?

The ‘Killer Robot’ Interface.

- The facts
- Professor argues that design of the interface was responsible for the disaster; interface breached each of Shneiderman’s ‘8 golden rules’
- Stakeholders?
- Randy, Bart’s family; the two companies; the product development team; computer scientists, project management; design community – esp interface designers; Prof Gritty; Schneiderman..
- Ethical issues
- responsibility – the place of the user in development; responsibility and design guidelines; leadership responsibility; the ethics of introducing computers into the workplace
- How might the ACM code address this?
- ..quality; professional competence; evaluation ..
- How might informal codes be of relevance – what ‘smells’ here?

Silicon Tectronics Promised to Deliver a Safe Robot

- The facts?
- programmers make public the requirements document
- Stakeholders?
- Randy, Bart's family; the companies; the software team; computer scientists, project management; design community etc..
- Ethical issues
- contracts and responsibility; relationship between legal and ethical issues; leadership responsibility; ethical responsibilities to employees and colleagues; anonymity and confidentiality; whistle-blowing ??
- How might the ACM code address this?
- Professional contracts; laws relating to professional work; confidentiality; avoid harm..
- How might informal codes be of relevance – what 'smells' here?

Software Engineer Challenges Authenticity of ‘Killer Robot’ software

- The facts?
- Professor Silber discovers discrepancy between documented software tests and the robots actual behaviour
- Stakeholders?
- Randy, Bart’s family; Prof Silber; the companies; the software team; computer scientists, design community; usability experts; etc..
- Ethical issues
- contracts and responsibility; testing and responsibilities; ethical issues of reliability; relationship between legal and ethical issues; ethical responsibilities of academics to the wider community..
- How might the ACM code address this?
- Professional review; dignity at work??
- How might informal codes be of relevance – what ‘smells’ here?

Silicon Techtronics Employee Admits Faking Software Tests

- The facts?
- Cindy Yardley admits faking software tests at behest of her boss Ray Johnson. Details exposed by corporate security officer Max Worthington who had job of monitoring email
- Stakeholders?
- Randy, Bart's family; Cindy, ray and Max; the company; the software team; computer scientists,.
- Ethical issues
- contracts and responsibility; testing and responsibilities; ethical issues of reliability; whistle blowing; privacy, surveillance and confidentiality...codes of ethics
- How might the ACM code address this?
- Various to do with professional responsibility (Cindy) & leadership responsibility Ray) .. What about Max??
- How might informal codes be of relevance – what 'smells' here?

A Conversation With Dr. Harry Yoder

- The Facts
- Dr Yoder argues that the corporation is responsible for the accident
- Stakeholders
- Bart's family; the company; the Company CEO and Directors; the software team; computer scientists; organised capitalism; the legal system, law enforcement agencies..
- Ethical issues
- business responsibilities; legal and ethical accountability; leadership responsibility;.. Notions of ultimate responsibility and blame
- How might the ACM code address this?
- Arguments about individual, leadershi and corporate responsibility..
- How might informal codes be of relevance – what 'smells' here?.. Smells good to me..