Why Computer Ethics?

• New issues accompany new technologies
• New actions, new consequences
• Old actions, new consequences
• “Common wisdom” not always adequate
Technology and Ethics

- Dynamic between society and technology
- People discover/develop new technology
- People adopt/use that technology
- Use of technology changes society
- Impacts of technology
- Positive and negative effects
- Ethical issues
Ethical Issues

• Problems where one must decide whether to do an action or decide which action to do, realizing that there are different effects for those involved.
Ethical Problem I

• Several patients have a relatively rare disease for which medicine is in short supply.

• One patient is at an advanced stage of the disease but can be saved by 4 doses of the medicine.

• There are also 4 other patients with milder cases of the disease, that can be saved with one dose each.

• The hospital has 4 doses of the medicine. No more will become available. The patients will die without the doses indicated above, but will be saved with them.

• You must decide what to do.
Ethical Problem II

- One patient is at an advanced stage of a rare disease but can be saved by 4 doses of the medicine.
- You order 4 doses of the medicine for that patient.
- Then, 4 other patients with milder cases of the disease appear, who each can be saved with one dose each.
- No more medicine will become available. The patients will die without the doses indicated above, but will be saved with them.
- The 4 doses arrive. You must decide what to do.
Ethical Problem III

- 4 patients have a relatively rare disease.
- If a patient gets 2 doses of a medicine, she will survive. If a patient gets one dose, she has a 50% chance of surviving.
- There are only 4 doses of the medicine available.
- No more medicine will become available. The patients will die without the doses indicated above.
- You must decide what to do.
Ethical Problem IV

• A runaway train approaches a track switch that you control.
• If the train goes straight through the switch, it will kill one worker that is on the track.
• If you switch the train, it will kill 4 workers on the side track.
• What will you do?
Ethical Problem V

- A runaway train approaches a track switch that you control.
- If the train goes straight through the switch, it will kill 4 workers that are on the track.
- If you switch the train, it will kill one worker on the side track.
- What will you do?
Ethical Problem VI

• A runaway train approaches under a bridge where you are standing with another person.

• If the train goes under the bridge, it will kill 4 workers on the track around the bend.

• If you push the person next to you off the bridge, the train will kill that person but stop before the others.

• What will you do?
CALVIN AND HOBBES

Whenever I need to do some serious thinking, I go for a walk in the woods.

There are always a million distractions out here.

As far as I'm concerned, the ends justify the means.

I don't believe in ethics anymore.

Get what you can while the getting's good—that's what I say! Might makes right? The winners write the history books?

It's a dog-eat-dog world, so I'll do whatever I have to, and let others argue about whether it's "right" or not.

Hey! Why'd you do that?!

You were in my way. Now you're not, the ends justify the means.

I didn't mean for everyone, you dolt! Just me!
Ethics

- Ethics: systematic, rational analysis of issues regarding performance of actions having both positive and negative impacts on self and others
- “Doing ethics”: creating answers to ethical problems along with convincing justifications
- Justifications: facts, values, logic
Ethical Theories

- Methods for considering the morality of actions
- Methods for evaluating whether actions should or should not be done
- Methods for guiding the design of ethical actions
- Sources of values and logics for explanation
Ethical Theories

• Workable ethical theory
• values and logic that can produce justifications that can be persuasive to a skeptical, but open-minded audience
Ethical Theories

- Subjective relativism
- Cultural relativism
- Divine command theory

- These theories provide values and logic. They are not workable by our definition.
Subjective Relativism

- Relativism
  - No universal norms of right and wrong
  - One group could say “X is right,” another could say “X is wrong,” and both could be right
- Subjective relativism
  - Each decides right and wrong for himself or herself
  - “What’s right for you may not be right for me”
How are you doing on your New Year's resolutions?

I didn't make any.

See, in order to improve oneself, one must have some idea of what's 'good.' That implies certain values.

But as we all know, values are relative. Every system of belief is equally valid and we need to tolerate diversity. Virtue isn't 'better' than vice. It's just different.

I don't know if I can tolerate that much tolerance.

I refuse to be victimized by notions of virtuous behavior.
Case for Subjective Relativism

- Well-meaning and intelligent people can disagree on moral issues
- Ethical debates are disagreeable and pointless as no one is convinced of other’s viewpoint
Case Against Subjective Relativism

- Blurs distinction between doing what you think is right and doing what you want to do.. egoistic ethics.
- Subjective Relativism and tolerance are not the same
  - can be strong disagreements with no resolution
- Decisions often not based on reason, no justification.

Not a workable ethical theory
Cultural Relativism

- What is “right” and “wrong” depends upon a given culture’s moral guidelines or current practices
- These guidelines vary from place to place and from time to time
- A particular action may be right in one society at one time and wrong in other society or at another time
Case for Cultural Relativism

• Different social contexts demand different moral guidelines
• Behavioral data indicate significant cultural differences
• It is arrogant for one society to judge another
• Morality is reflected by actual behavior within a culture
Case Against Cultural Relativism

- Because two societies do have different moral views doesn’t mean they should have different views
- Doesn’t explain how moral guidelines are determined or evolve
- Provides no way for cultures in conflict to resolve issues
- Because many practices are acceptable, does not mean any cultural practice is acceptable (many/any fallacy)
- Societies do, in fact, share certain core values
Cultural Relativism

• How to respond to cultural differences is a significant source of ethical issues in the information age.

• Global information space.. impacting local cultures and norms
  • freedom of speech, intellectual property
Divine Command Theory

- Good actions: those aligned with God’s will
- Bad actions: those contrary to God’s will
- Holy books reveal God’s will
- Use holy books as moral decision-making guides
For Divine Command Theory

• Believers owe obedience to our Creator
• God is the ultimate authority for believers
• Most shared religious rules are supportive of communities… ethical
Against Divine Command Theory

- Holy books can disagree, different gods
- Interpretation of holy books can differ
- Society is often multicultural, secular
- Not all moral problems addressed in scripture
- “good” ≠ “God” (equivalence fallacy)
- which came first
- Based on obedience, not reason
Divine Commands

- Many people around the world base much of their ethical decision making on their religion, its commandments, and its leaders.
- This is the source of significant frictions, similar to cultural relativism.
  - not workable in our framework
Western Ethical Theories

- Kantianism
- Social contract theory
- Act utilitarianism
- Rule utilitarianism

These can be considered workable.
Age of Enlightenment/Reason

- Europe, cc 1650-1800
- made possible by spread of printing press and thus the expansion of human discourse
- source of most of our ethical theories
- WEIRD - western, educated, industrial, rich, democratic
Kantian Ethics

- Immanuel Kant (German, 1780’s)
- Only thing in the world that is good without qualification is good will ~ “dutifulness”
- what one ought to do is more important than what one wants to do
- Reason should cultivate desire to do right thing.
Categorical Imperative

(1st Formulation)

Act only from moral rules that you can make be universal moral laws.
Illustration of 1st Formulation

- Question: Can a person in difficulty make a promise with the intention of breaking it later?
  - The person in difficulty wants his promise to be believed so he can get what he needs.
- Universalize rule: Everyone may make and break promises as they feel they need to do so.
  - This rule would make promises generally unbelievable, contradicting the desire to have promise believed.
- Extenuating circumstances are not important.
Categorical Imperative

(2\textsuperscript{nd} Formulation)

Act so that you treat both yourself and other people as ends in themselves and never only as a means to an end.

This can sometimes be easier to work with than the first formulation of the Categorical Imperative.
Carla

- Is a single mother, working full time
- Takes two evening courses/semester

Carla’s History class

- Requires more work than normal
- Carla earning an “A” on all work so far
- She doesn’t have time to write final report

Carla purchases a report online, submits it as her own
Kantian Analysis -- 1st Formulation

- Carla wants credit for plagiarized report
- General Rule: “A person may claim credit for work performed by others (when they don’t have time to do the work).”
- Written reports would no longer be credible indicator’s of a student’s knowledge and understanding
- Proposed moral rule is self-defeating
- It is wrong for Carla to turn in a purchased report
Kantian Analysis -- 2\textsuperscript{nd} Formulation

• Carla submitted another person’s work
• She attempted to deceive her professor
• She treated professor as a means to an end
• Therefore, what Carla did was wrong
• Circumstances are irrelevant, the intent and action determine judgement
Case Against Kantianism

- Sometimes no one rule adequately characterizes an action or situation.
- What is the right rule to form and apply?
- There is no way to resolve a conflict between rules.
- Kantianism allows no exceptions to moral rules.
Case for Kantianism

- Rational
- Based on notion of universal moral guidelines...
  duty to do good
- Treats all persons as moral equals
- Workable ethical theory
Social Contract Theory

- Thomas Hobbes  (English, 1600’s)
- We implicitly accept a social contract
- Establishment of moral rules to govern relations among members of a society
- Government capable of enforcing these rules when enacted as laws
Social Contract

- Social contract arguments posit that individuals have consented, either explicitly or tacitly, to surrender some of their freedoms and submit to the authority of a ruler or to the decision of a majority, in exchange for protection of their remaining rights.
Social Contract Theory

- Jean-Jacques Rousseau (French, 1700’s)
- In an ideal society, no one is above the rules
- This prevents a society from enacting bad rules
Social Contract Theory

- Ethical analysis performed in terms of people’s rights and duties
- Society, implicitly or explicitly, assigns rights and duties to its members
- Ethical actions are those that do not violate members’ rights... do no harm
Social Contract Theory

• The need for rights and duties arise in a social situation
• Actions impact others in a social context
• Maximize personal liberty while minimizing societal impacts
• Property and the rights to own and share property are major concerns
Kinds of Rights

- Negative right: A right that another can guarantee by leaving you alone to do something (right to vote)
- Positive right: A right obligating others to do something on your behalf (right to education)
- Absolute right: A right guaranteed without exception
- Limited right: A right that may be restricted based on the circumstances (freedom of speech)
UN Declaration of Human Rights

DVD Rental Scenario

- Bill owns chain of DVD rental stores
- Collects information about rentals from customers
- Constructs profiles of customers
- Sells profiles to direct marketing firms
Social Contract Analysis

- Consider rights of Bill, customers, and marketing companies.
- Does customer have right to expect name, address to be kept confidential?
- If customer rents DVD from Bill, who owns information about the transaction? Ownership determines rights.
Social Contract Analysis

- If Bill and customer have equal rights to information, Bill did nothing wrong to sell information.
- If customers have right to expect name and address or transaction to be confidential without giving permission, then Bill was wrong to sell information without asking for permission.
- If customer gives limited right to information only for rental transaction, then Bill was wrong.

What is assumed or implied?
Case for Social Contract Theory

- Framed in language of rights and duties
- Provides clear analysis of certain citizen/government problems
- Workable ethical theory
Case Against Social Contract Theory

- No signed contract, disagreement on rights
- Some actions have multiple characterizations
- Conflicting rights problem
Social Contract Theory

- Need to clarify rights and duties
- leads to “fine print” agreements on commercial interactions
- good practices to eliminate conflict
Deontological vs Consequentialist

• Deontological Ethics.. based on respect for intentions, rights and duties

• Consequentialist Ethics... based on evaluation of outcomes
Utilitarianism

- Jeremy Bentham and John Stuart Mill ... 1800’s
- An action is good if it benefits someone
- An action is bad if it harms someone
- Outcomes important ... not good will or intention
- Consequentialist theory
Utilitarianism

- Utility: tendency of an object to produce happiness or prevent unhappiness for an individual or community
- Happiness = advantage = benefit = good = pleasure
- Unhappiness = disadvantage = cost = harm = pain
Act Utilitarianism

An action is right (or wrong) to the extent that it increases (or decreases) the total happiness of the affected parties.

affected parties -- stakeholders
Act Utilitarianism

- Utilitarianism
  - Morality of an action has nothing to do with intent
  - Focuses on the consequences, not intentions
- Act utilitarianism
  - Sum the change in happiness of all affected beings
  - Sum > 0, action is good; Sum < 0, action is bad
Act Utilitarianism

- Methodology
  - identify stakeholders
  - identify impacts of proposed act on stakeholders
  - evaluate overall impact by combining impacts
Highway Routing Scenario

- State may replace a dangerous stretch of busy highway
- New highway segment less curves, 1 mile shorter
- 150 houses would have to be removed
- Some wildlife habitat would be destroyed
Highway Routing Scenario

- stakeholders
- home owners along proposed route
- drivers that use the route
- state tax payers
- wildlife, environment
Evaluation

• Costs
  • $20 million to compensate homeowners
  • $10 million to construct new highway
  • Lost wildlife habitat worth $1 million

• Benefits
  • $40 million savings in automobile driving costs
  • saved lives and reduced hospital costs

• Conclusion
  • Benefits exceed costs
Case Against Act Utilitarianism

• Unclear whom to include as stakeholders
• Unclear the valuation of certain impacts
• Too much work for all decisions
• Ignores our innate sense of duty
• Susceptible to the problem of moral luck
Case for Act Utilitarianism

• Focuses on happiness
• Down-to-earth (practical)
• Comprehensive

• Workable ethical theory
• Workable ethical theory
Bentham
Weighing Benefits/Costs

- Intensity, Duration, Certainty
- Propinquity, Fecundity, Purity, Extent

To enact climate change regulations
To enact tax reform measures
Rule Utilitarianism

• Adopt general, moral rules which, if always followed by everyone, would lead to the greatest increase in total happiness

• Act utilitarianism applies utility analysis to individual actions

• Rule utilitarianism applies utility analysis to general situations
Rule Utilitarianism

- Methodology
  - generalize context
  - who are general stakeholders
  - impacts
  - values
Anti-Worm Scenario

- August 2003: Blaster worm infected thousands of Windows computers, impeding their performance
- Soon after, the so-called Nachi worm appeared
  - Took control of vulnerable computers
  - Located and destroyed copies of Blaster
  - Downloaded patch to fix security problem
  - Used computer as launching pad to try to “infect” other vulnerable PCs that had the killer worm
Evaluation using Rule Utilitarianism

• Proposed rule: If one can write/launch a helpful worm that removes a harmful worm from infected computers and protects others from attack, one should do so.

• Stakeholders?
  • Who would benefit? Who would be harmed?
  • What is balance?
Case for Rule Utilitarianism

• Compared to act utilitarianism, it is often easier to perform the utilitarian calculus.
• Moral rules survive exceptional situations
• Avoids much of the problem of moral luck

Workable ethical theory
Case Against Utilitarianism

- All consequences must be measured on a single scale.
- Utilitarianism ignores the problem of an unjust distribution of good consequences.
- Utilitarianism does not mean “the greatest good for the greatest (or neediest) number”
- That requires a Principle of Justice
- What happens when a conflict arises between the Principle of Utility and a Principle of Justice?
Each person may claim a “fully adequate” set of basic rights and liberties, so long as these claims are consistent with everyone else having a claim to the same rights and liberties....

“equal opportunity”
John Rawls’s Principles of Justice

- Any social and economic inequality must
- Be associated with positions that everyone has a fair and equal opportunity to achieve
- Be to the greatest benefit of the least-advantaged members of society (the difference principle)
I read this ethics book. You got me.

What did you think of it?

It really made me see things differently. It's given me a lot to think about.

I'm glad you enjoyed it.

It's complicating my life. Don't get me any more.
General Procedure for Ethical Analysis

• Step 1: Clarification
  • clarify the facts
  • clarify stakeholders
General Procedure for Ethical Analysis

- Step 2: Identify the Question
  - understand ethical questions/issues
  - Should who do what?
General Procedure for Ethical Analysis

• Step 3: Preliminary Analysis
  • Mom test, TV test, Smell test
  • Legal considerations
  • Religious considerations
General Procedure for Ethical Analysis

- Step 4: Theory-based Analysis
  - Kant
  - Utilitarianism (Act or Rule)
  - Social Contract
Kantian Analysis

• Universal Rule
• look for self contradiction or defeat
• Person as end, not means
• look for use of person, deception, not respect
Utilitarian Analysis

- identify stakeholders
- associate consequences with stakeholders
- weigh the consequences
- of act or of general rule
Social Contract Analysis

- consider rights and duties of stakeholders (positive and negative)
- look for violations of rights or failures to meet duties
Procedure for Ethical Analysis

- Step 5: Decision and Implementation
  - decide on an ethical course of action
  - implement that action