WHY?

Why do we study philosophy and its derivative ethics?

- And why do we study the branch of philosophy called ethics?
- And why would we assert that there is a distinct field that can be fairly termed “computer ethics”?
- Isn’t ethics indivisible?
- Are not the ethics of this age the same as Greek philosophers 30 centuries ago?

The why of philosophy

- In mathematics and the sciences, we study structures that are both discoverable and that we are able to fit into a coherent framework ("coherable").
- Philosophy is distinct in that while it is also based on applying thought, it is far more personal; like the Red Queen of Wonderland, the art of philosophy is wide-minded enough to support many contradicting bases.

Ethics

- Decisions about right and wrong are ethics in action.
- You can break ethical considerations into three layers:
  - A top layer of the "whys" of ethics (meta-ethics)
  - A middle layer of theories of ethical systems that define the norms used to measure ethical behavior (normative ethics)
  - A bottom layer of the application of ethical theories (applied ethics)
- Some people include other layers, such as a layer of "descriptive ethics" or "comparative ethics".

Measuring ethical behavior

- The normative ethical systems that get the most attention are
  - *Deontological* systems: The various types of deonotological ethics are based on the precept of duty, and generally share the maxim "the ends never justify the means." The foremost philosopher in the deontological school was Immanuel Kant ("Fundamental Principles of the Metaphysics of Morals").
    Natural law: These deonotological systems hold that ethical behavior is defined by recognizing and honoring the existence of inherent rights that all people naturally possess.

Measuring ethical behavior

- [continued]
  - *Consequentialist* systems (aka telological systems): The various consequentialist schools are based on measuring the consequences of actions. They all share some version of the maxim "the ends justify the means." The most popular schools of consequentialism are based on Jeremy Bentham's formulation of utilitarianism. His protege, John Stuart Mill, was probably the greatest writer on utilitarian principles ("Utilitarianism").

Measuring ethical behavior

- [continued]
  - *Virtue* systems: Virtue ethics is based on the idea that "good people do good things." It emphasizes character; the foremost name in this school is Aristotle ("Nicomachean Ethics"). (It is reasonably common to count Confucian ethics as a member of this category; if you believe this, I would suggest that other Eastern systems might also be reasonably considered virtue systems.)

Science and ethics

- Despite the emphasis on standards of behavior, ethics is not a science and we should not expect that ethical theories have the same characteristics that we expect of scientific theories.
- For computer scientists, we have a heavy bias toward empiricism: our theoretical foundations lie in logic and mathematics, and our vocation lies in applying these foundations. Applied ethics, such as the ACM Code of Ethics, probably have the most resonance for us.
- The centrality of the Popperian concept of falsifiability is one that, while it has a strong intuitive appeal to the scientific mindset, is not clearly a necessary part of any ethical framework.

Philosophy, ethics, morals, and not laws

- The idea of law is a very old one; the Code of Hammurabi dates back some 2700 years.
- The rule of law is an imposition of force; often there is some sort of code and processes for executing this code, but certainly not always.
- Legal systems are not ethical systems – although of course it is possible that a given legal system might have its foundations in some sort of ethical concepts, and its actions might even conform to some ethical theory.
- It is an error of the first order to mistake a legal system for an ethical system.

Is computer ethics distinct from just unadorned ethics?

- This is not a settled question. While it is clear that computers have brought new problems into the world, it's not clear that computers have introduced new categories of problems. (See the Maner/ Johnson debate link on the class page.)

Is computer ethics distinct from just unadorned ethics?

- It seems to me that the ethical issue central to the computer ethics issue is that of automation. The most apposite current example is likely that of the automation of consumer vehicular traffic; the idea of the "autonomous vehicle" seems to be something clearly in the field of computer ethics that is distinct from ethics absent the idea of automation.

Is computer ethics truly a distinct subject?

- Wiener would argue yes; indeed, in *The Human Use of Human Beings* (HUHB), he argues that the creation of automata even poses aspects similar to the creation of life. (E.g., see Chapter III).
- Moor certainly did; viz. What is Computer Ethics?, http://www.cs.utexas.edu/~ear/cs349/Bynum_Short_History.html

Is computer ethics truly a distinct subject?

- Gorniak argued that computer ethics will become global ethics; viz., From computer ethics to the ethics of global ICT society
- Floridi argues that computer ethics should instead become information ethics; viz., Information Ethics: On the Philosophical Foundation of Computer Ethics, his personal website: http://www.philosophyofinformation.net/

Is computer ethics truly a distinct subject?

- Bostrom's take on the ethics of artificial intelligence work: http://www.nickbostrom.com/ethics/ai.html; Bostrom's personal page for his writings

Topics that we will cover this semester

- Various codes of ethics
- Computer Science and Ethics
  - Scientific Ethics
  - Professional Ethics
  - The intersection of technology and ethics

Topics that we will cover this semester

- Ideas that structure our world of computer science
  - The mathematical basis of computer science * State as data and state as activity
- Computer science and "The Curious Idea of Intellectual Property"
- Implications of apply TCIIP to mathematics and to computer science

Topics that we will cover this semester

- Computer science creating new computer technology and applications
  - Technological implementations and their limitations
  - Is it “right” to create some technology? * What are the ethical issues in creating, say, a “Skynet”?
  - What about other tools? Are there ethical and moral issues involved in creating tools that have multiple applications?

Topics that we will cover this semester

- Computer science creating new computer technology and applications
  - What about badly made tools? Are there ethical and moral issues in employing a "rapid" model of software development where developers routinely turn out shoddy and dangerous code? Do you want to ride in a Tesla developed under such a model? How about an Airbus?
  - The possible obsolence of work.
  - The ethics of encryption.
  - The surprising danger of superintelligence.

Topics that we will cover this semester

- Stewardship
  - When we are entrusted with people's property and data
  - Fortunately, we have millennia of experience with the idea of stewardship (also we have the well-developed ideas of "fiduciary duty" and "contractual obligations")
  - How does the digital world relate to traditional stewardship responsibilities?

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - Preface make it clear that the authors are positive about technology and its overall implications for humanity; “We see them [problems and negative side effects of new technologies] as part of a natural process of change and development.”

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - Emphasis on the increasing speed of social and technological change from (roughly) the late Enlightenment until now
  - The first detailed technological discussion is self-driving cars; emphasis on the greater potential for human safety
  - Some discussion of "cars as an on-demand service" (the old taxi model)
  - Some discussion of revamping the roads to accommodate the needs of autonomous vehicles rather than those of human drivers

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - The second detailed technological discussion on mobile phones, social media, and the burgeoning Internet of Things
  - The discussion of mobile phone technology is somewhat balanced as to the positive and negative impacts of these devices
  - Good list of open questions about mobile technology

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - The discussion of social networking is necessarily shallow since social networking now encompasses billions of people worldwide, in hundreds of different cultures. The sheer number of platforms that in this proliferation makes it almost impossible to give even broad coverage in a few pages of the text. The discussion particularly of the negative effects of such activities is very brief indeed (matching the generally technology-positive attitude of the authors.)

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - The Internet of Things discussion is very light, but this is in part because this subject is later covered in the text in the discussion of technological vulnerabilities (particularly in Chapters 5 and 8).
  - The discussion of "free stuff" is largely a simple list of "free" services and how some of these are funded, but the discussion does not mention surveillance capitalism as a concept

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - The discussion of artifical intelligence does introduce both Turing testing and the John Searle's ideas on "Chinese boxes"; the discussion of robotics does introduce some issues about displacement of humans.
  - Note that the text concedes that "Early in the development of AI, researchers though the hard problems for computers were tasks that required high intelligence and advanced training for *humans*, such as winning at chess and doing mathematical proofs. ... AI reserachers realized that narrow, specialized skills were *easier* for computers..." (Moravec's Paradox).

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - The final section of Chapter 1, 1.4, discusses ethics in the large; it also goes into some discussion of natural rights, negative rights, and positive rights; the summary of the chapter goes along the lines of "We cannot solve ethical problems by applying a formula or an algorithm. Human behavior and real human situations are complex and there are many trade-offs to consider."

Review of Preface and Chapter 1

- Review of Preface and Chapter 1
  - "Perfection is a direction, not an option": the text takes the stance (consistent with its overall bias for consequentialism): "In general, when evaluating new technologies and applications to some ideal... Instead, we should compare them to the alternatives and weight problems against the benefits."
  - The final summary of the differences in laws and in ethics is a good one that emphasizes that these are two very different subjects, and the creation of law is not directly related to ethical thought

Topics that we will cover this semester

- Social media's social impacts
- What has worked in the social aspect of computing
- Laws, legalities, jurisdictions, and ethics
- Civil liberties in the digital age
- Big Data + Internet of Things = Pervasive Surveillance