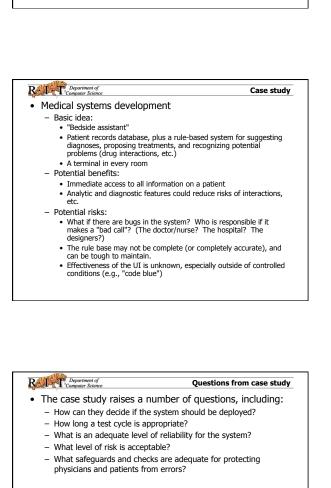


Ethical Analysis



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Repartment of Ethical analysis	
 Questions such as the preceding are not purely technical, though they have their sources in technology 	
The real concerns are about:	
the benefits of the systemthe risks it imposes on patients	
the conflicting goods and harms involved	
In short, it's a matter of ethics	
There are a number of different approaches to ethical	
analysis, three of which are outlined in the paper: - Normative ethics	
- Normative etnics - The ethics of virtue	
- Social ethics	
Representation Normative ethics	
Involves the development and justification of rules for	
"right conduct"	
 Four fundamental principles are relevant to the introduction of inherently risky technology into a 	
situation affecting human life/well-being	
 Beneficence – the obligation to do good 	
 Nonmalfeasance – the obligation to avoid doing harm Autonomy – respect for the freedom/self-determination of all 	
people	
 Justice – the fair distribution of benefits and burdens 	
Repartment of Computer Science Potentially opposing principles	
Most people will agree that all four principles are	
important: the problem is prioritizing them	
Two or more principles may conflict with each other	
 Is it always more important to avoid harm than to do good? This could mean passing up opportunities to improve people's lives, 	
out of a fear of taking comparatively small risks	
 If beneficence and nonmalfeasance are always more important than justice/autonomy, then we can focus solely on efficiency. 	
But this would mean ignoring the rights of individuals to choose. Madical actors College Colle	
 "Medical paternalism" ("doctor knows best") is another example. 	
No ethical system has been able to unify/prioritize the	
principles in a generally acceptable fashion.	
 The most we can do is to say that they're all important, and to try to find a good balance. 	

Repartment of Computer Science Guidelines for applying the four principles • We need to strive for: - Proportionality • the good achieved by the technology must outweigh the harm/risk • there must be no alternative with less harm/risk that can provide the same/comparable benefits - Informed consent • those affected should understand and accept the risks Justice • the benefits and burdens should be distributed fairly • those who benefit should assume a fair share of the risk; those that do not, should not suffer significantly increased risk Minimized risk even given the other three guidelines, the technology must be implemented so as to avoid all *unnecessary* risk The ethics of virtue • Unlike in normative ethics, the ethics of virtue don't focus on what is the right thing to do in a given situation. • Instead, we consider what kind of person does the right thing. - What is good and desirable about technology? - What motivates engineers and other technologists? R Department of Computer Science Three "goods" of technology • The exercise of human creativity - Technology can be seen as an end in itself. Incentives include: • The challenge of solving tough problems • The satisfaction of "making it work", or creating something new and useful • Economic benefits The creation of wealth - Incentives include: • Hope for financial reward (and continuing employment) as a result of creating successful products • Bettering human existence - Possibly the "most noble" - Also the most remote in experience for many computer professionals

Department of Social ethics
Recognizes that values and choices are not just at an individual level
They are embodied in social structures
Can be seen as a source of answers to questions like:
 Why does the computer profession sometimes fail to protect the
public?Why is the public sometimes exposed to technology that is
unjustifiably risky?
Reportment of Computer Science Some possible "social ethics" answers
 There may be insufficient knowledge (or analysis) of the risks and benefits of a given technology
 Computer professionals too often focus on purely
technical issues, ignoring <i>human</i> issues Computer professionals frequently define their
obligations primarily in terms of loyalty to their
company/organization and to its goals (e.g., making profits)
 Protecting the public welfare may not be seen as a competing or
overriding goal
Repertment of Computer Science Some possible solutions to these weaknesses
• Education
 A fundamental part of every doctor's training is a detailed understanding of not just their obligation to a patient, but also
the implications of that obligation.
 Risk analysis This is tough, especially in computing
"When civil engineering was this old, the right triangle hadn't been invented yet"
- We need to learn (as a profession) to do this better, and to do it
more consistently

Repartment of Computer Science Some possible solutions to these weaknesses	
 Participatory design Make the customers/users who will be affected by the technology a part of the design/implementation process 	
 This will help it to better meet their needs Respects the right to users' autonomy Increases computing professionals' contact with the public, helping 	
to increase awareness of our obligation to uphold public welfare Support and protection Professional societies (and members) need to support those who	
act in the public interest (e.g., "whistle-blowers", etc.)	
Reperment of Computer Science We're engineers, damn it!	7
We're engineers, damn it! We don't like asking questions about "right and wrong". We want it to be black and white (Boolean), not all "soft and squishy"	
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