3.3 Introduction to Robot Ethics

The Robotics Revolution

If the evolution of the robotics industry is analogous to that of computers, then we can expext important social and ethical challenges to emerge from robotics, as well, and attending to them sooner rahter than later will likley help mitigate those negative consequences.

Robots in Society

Robots perform jobs (three D's: dull, dirty or dangerous) and are able to work more precise, serve roles in society that are often handicapped or made impossible by human frailties and limitations.

Main fields of work:

- Labor and services: mainly housekeeping and manufacturing
- Military and security: drones, arms, surveillance, defusing, home security
- Research and Education: data-gathering, exploring, lecturing
- Entertainment: Mainly aiding researchers in cognitive and motion studies. Also toys
- Medical and healthcare: mainly therapeutics, both physically and mentally. Also surgery
- Personal care and companions: elderly/children care, not yet intimate
- Environment: climate data, removal of dangerous/dirty material, identify pollution
- Future: robots will play more and more complex roles, will scale down and up (nano-technology and "smart" buildings) and play more sophisticated roles in synthetic biology.

Ethical and Social Issues

Mapping major issues into three broad, interrelated ethical and social areas

Safety and Errors

New technologies must be safe before being introduced. Robotics: safety comes from software and design. Even small flaws may cause catastrophic events.

Law and Ethics

Responsability

- Current laws lack entries for robotics and agreements release manufacturers from responsibility (via licenses).
- Supply chain contains many possibly liable parties.
- Robots themselves accountable? -> integration between computers and biological brains -> a conscious (human) being has human rights, replacing parts without impairing the function seems to retain these rights. If > 50% is robotic, then robot rights are likely.
- Robots will not be able to obey (at least context-sensitive) laws in the forseeable future.
- Usage of robots must also comply to laws and ethics, which are also unclear on this area.
- Hard to define all laws and ethics: not all issues have been identified yet.

Privacy

- Shrinking size of surveillance devices -> easier to spy more
- Increasing emphasis on security at the expense of privacy
- Biometrics capabilities and sensors -> ethnical purification
- Database integrations

Social Impact

- Job loss: many duties can be done by robots, but workers can do other things and should therefore make place, if benefits outweigh cost (like negative customer experience)
- Technology dependency: losing jobs to robots might cause a gradual loss of skill and knowledge in that field of work. Causes society to be more fragile.
- Impact on human relationships: bonding with robots, still unclear what phychological effects are, both short-term and long-term.
- Impact on environment: "e-waste", toxic materal/heavy metal used to create the many devices, also further exhausting earth supplies.

Engaging the Issues Now

Robotics industry rapidly advances, whereas ethics are behind. This can lead to a policy vacuum, in which robot manufactures can do what they want without being legally constrained to act ethically.