Is there an Ethics of Computing?

By Geoffrey Brown, 1991
Discussion Topics

❖ Is there an Ethics of Computing?
  • Individual Privacy
  • Software ownership
  • Computer "hacking"

❖ How do we treat these from the legal standpoint?

❖ Is there a computer-specific legislation required?
  • Pros
  • Cons
Computers and Privacy

• Why should privacy with regards to computerized data be given special treatment?
• Data Protection Act 1984: Intended to protect individual privacy which covered people’s notebooks, diaries and databases.
• Information vs information stored electronically
• Information: people may wish to keep certain information private at a given time.
  • Personal notes and notebooks
  • Financial transactions
  • Religious devotions
• Information stored electronically: Significantly different than a “hard copy”
  • Representation inside a machine, disk, or tape
  • Stored as 1s and 0s
  • Data can be copied, recopied, compressed, uncompressed and sent over a network.
Ownership of Software

• Owners of software do not want their ideas to be exploited for commercial gain by others.

• Difficult to articulate or codify

• Difficult to extract from existing legislation regarding the copyrights, patents and trade secret.

• Program vs Algorithm

• Program:
  • A computer program is written in a particular programming language, by a particular programmer at a particular time.

• Algorithm:
  • Underlying method of which the program is an instance and possibly written in other languages.
Example

• Find the length of the circumference of a circle given its radius.

• Computer programs which calculate this can be written in different languages but they all would be exemplifying this same algorithm.

\[ C = 2\pi r \]
Algorithm vs Program

- What is the new law should be called on to protect? Algorithm or program?
- Problem with rights over program:
  - Anyone can alter the program just enough to make it different
  - Anyone can translate the program to another language
- Problem with rights over algorithms:
  - How can algorithms be “intellectual property”?*
  - Allowing copyrights over Pythagorean Theorem would be like permitting someone to take out a patent on rainfall or natural selection.
- We are not dealing with unfamiliar behaviors or motives but with unfamiliar kinds of objects.
Computer “hacking”

• Exploring the limits of what can be done in a given computer system

• Attempting to manipulate computer systems for nefarious purposes
Mischievous Hacking

- **Time Bombs**: Planted in the machine and triggered to go off at a given time. Best know as “Friday the 13th”
- **Logic Bombs**: Executed by a combination of circumstances within the system
- **Trojan Horses**: Introduced into the system as part of an apparently legitimate piece of software. Unlikely to be suspected by owners, administrators and users.
- **Viruses**: Most feared form of computer mischief. Viruses are reproductive and can infect other systems and machines.
- **Worms**: Similar to viruses but not able to self-replicate. Mostly affect the memory area.
Computer Misuse Act 1990 (UK)

• Three new offences proposed by the Law Commission:
  • Unauthorized entry into computer system:
    • Maximum 3 months imprisonment
    • £2000 fine or 6 months imprisonment
  • Unauthorized entry with intent to commit or assist in serious crime:
    • Maximum 5 years imprisonment
  • Altering computer-held data or programs without authorization:
    • Maximum 5 years imprisonment
Opposition

• Peter Sommer: Computer forensics consultant also known as Hugo Cornwall
• Most of what Computer Misuse Act introduced was already illegal.
• Frauds → law of Theft and Forgery.
• Damage → The Criminal Damage Act of 1971
• Existing laws are useful in case of damage to the system.
What is the purpose of new legislation?

- Close potential loopholes: Intention to cause damage
- Closely connect related legislations: Laws no longer embody general principle. The law and legislations will need to keep up to date with rising computer technology era.
  - Example: Guns gave rise to special firearms legislation
- No other law makes it illegal to “hack into” unless there was a damage to the system.
- Not same as “getting into” someone’s property or trespassing. Hacker is not ”in” physically.
- Law against unauthorized entry will provide safety net for the prosecution.
Conclusion

• Computer specific legislation is required:
  • New usage and jargon
  • New sets of concepts
  • New categories of objects
Future Discussions and Questions

• Questions concerning more people interacting with machines instead of with people.
• How far can a computer be allowed to make decisions for us?
• What about the evidence of computers in court cases?
References: