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 stand point?

❖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

$$C = 2\pi r$$

- 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.

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
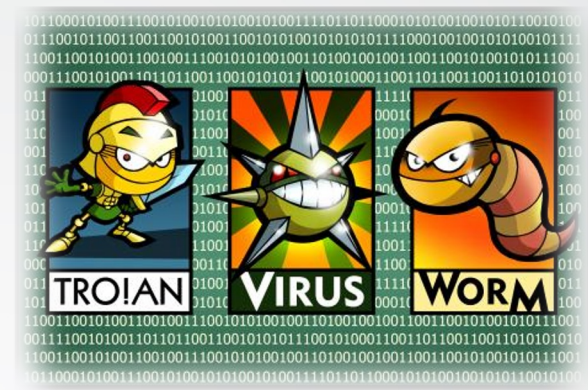
- **Time Bombs:** Planted in the machine and triggered to go off at a given time. Best know as "Friday the 13th"

- **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

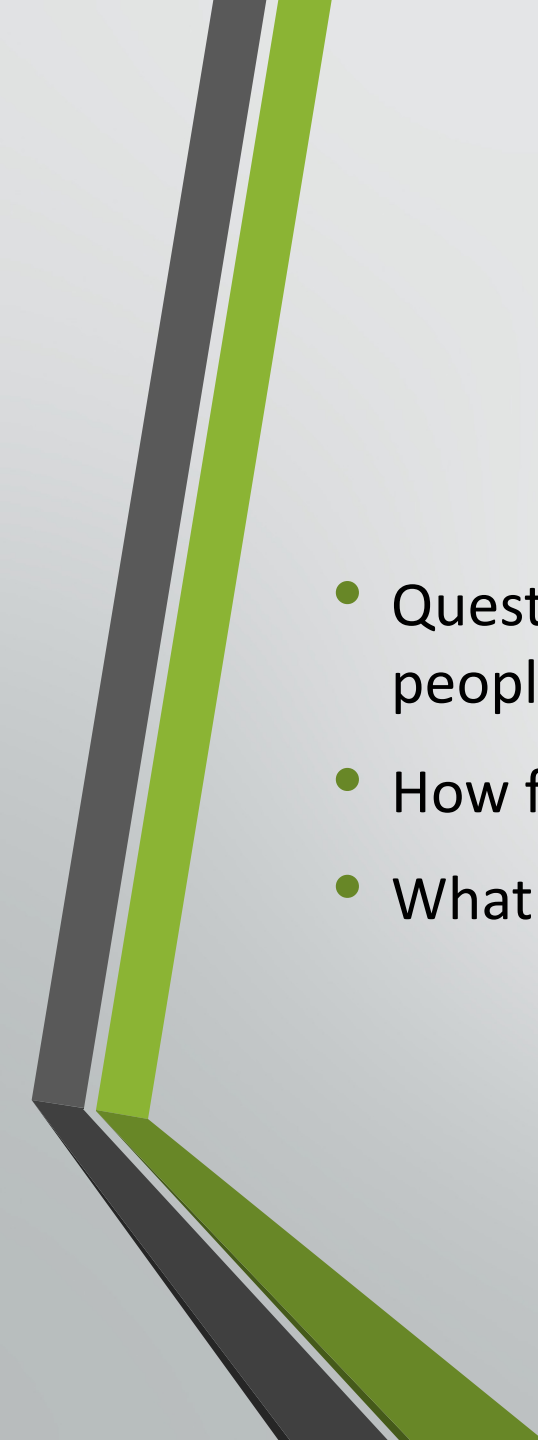- Existing laws are useful in case of damage to the system.

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:

- BROWN, G. (1991). Is there an Ethics of Computing? *Journal of Applied Philosophy*, *8*(1), 19–26. https://doi.org/10.1111/j.1468-5930.1991.tb00403.x