CSCI 4000
Ethical and Professional Issues in Computer Science

Chapter 4: Intellectual Property

This course is not primarily a lecture course. It will rely heavily on a discussion of the issues presented in the textbook *Computer Ethics: A Global Perspective* by Giannis Stamatellos. These slides present ideas and quotes from the textbook primarily to inspire and promote discussions in class. A focus will be placed on 1) the local and global impact of computing on organizations and society as well as on 2) how ethical principles and leadership quality impact individuals, organizations and society.
The production of *tangible* objects “... usually demands bodily skills.”

The production of *intangible* objects “... usually demands mind skills.”

Do intangible as well as tangible objects “... belong as private property to their creators...”? 
An aspect of the nature of intellectual property (in particular information) that differs significantly from other types of ownership:

If you illegally access it and make copies of it, **nothing is missing** from the site at which it was “stolen”.

Is *private property* a good or a bad idea? This is and has been a matter of philosophical and political debate.

“How can we establish whether private property is a good thing or not?”

“How can we know that the products of our physical or mental behavior belong only to ourselves and not to the totality of human kind?”

“Who will have control of the products?”

“To what extent is the possession of property the cause of conflict and injustice among societies?”
Some arguments in favor of private property.

John Locke:
• Your body and mind are your property as are the products of your body and mind.
• A person’s labor is the property of that person because it is an extension of that person.

David Hume
• Without the right to own private property a person would not have a motivation to work (i.e., would not be productive and accomplished).
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Some arguments against private property.

Plato:
• The guardians of an ideal city-state would not own private property and since everything would be held in common there would be no conflicts or injustice.

Karl Marx
• All property must be held in common.
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intellectual property – an original creation that includes

• ideas
• discoveries
• writings
• artistic and literary art
• collections
• “presentations of data”
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The right of intellectual property
“... legal rights concerning the ownership of intellectual products through patents, trademarks, registered designs, and copyrights.”

The right of intellectual property provides protection to

• technical inventions
• artistic and musical creations
• trademarks
• confidential information
• literary designs
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IT tools used in the violation of intellectual rights

• high-speed and large capacity storage media (CD-ROM, DVD, flash drives, hard drives)

• standard compressed storage formats (mp3, rtf, jpg, etc.)

• high-speed networks and the Internet (DSL, ISDN, fiber optics, etc.)

• easy sharing, editing, conversion between electronic devices (videos, scanners, cameras, software apps, etc.)
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Methods of copyright violations

• Modification without permission.

• Illegal use of parts of a work (music, image, text).

• Illegal copies distributed (e.g., CDs, DVDs).

• Digitized and placed on Internet without permission.

• Plagiarism (copying without acknowledging source).
“... the key to understanding intellectual property protection is to understand that the thing protected is the intangible creative work – not the particular physical form in which it is embodied.”
The WIPO “... defines intellectual property as creations of the mind: inventions; literary and artistic works; and symbols, names, images, and designs used in commerce.”
Copyright law distinguishes between

1. Ideas, which can’t be owned by anyone.
2. The expression of ideas.

Protection is only given to “… what is fixed in a tangible medium of expression.”
There is a desire for balance between the Intellectual property rights of an author and *fair use* of that author’s work.

Factors that help to determine fair use.

1. **Purpose of the use**: commercial vs. non-profit educational.
2. **Nature of the work**.
3. **Amount of the work used**.
4. **Effect of the use on the potential market value or use for the work**.
Computer software is protected by software copyright.

U.S. copyright law (Title 17 of the U.S. Code): the copyright holder is the only person who can make and distribute copies of the work, produce derivatives of the work, use the work in public.

The Computer Software Copyright Act (1980) declared that software is a copyrightable work.

Digital Millennium Copyright Act (1998) extended software copyrights to works disseminated in digital format.
An issue raised by Stamatellos:

If an invention (new idea), software should be covered by patent law.

If an expression of ideas, algorithms and formulas, then software should be protected by copyright law (which is currently is).

Is copyright protection the most appropriate protection for software?
Computer software (digitized electronic material) is created through intellectual activity and so is protected by intellectual property law.

This means that the copyright owner and not the buyer of software has the sole right to lend, copy, resell, transfer a software product.

Buying a DVD gives the buyer one copy which can only be viewed privately.

Buying a software app is only for the buyer’s personal use.
Four categories of software piracy.

1. Illegal exchange or downloading of software on the Internet.

2. Illegal purchases/ sales of software without documentation or copyright agreements.

3. Illegal copying of software for others at no cost or reduced cost.

4. Large-scale copying and distribution/sales.
Not all software has copyrights. Four types of software products are found today.

1. Freeware: copyrighted; free distribution and use but with restrictions on sale or modification.

2. Shareware: free distribution; has a voluntary fee requested after an evaluation period.

3. Public domain: free distribution and use with no restrictions on sale or modification.

4. Proprietary software: copyrighted; for sale with license; may not be modified.
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Software license types.

1. Single-user license – may only be used on one computer.

2. Multi-user license – installed on multiple computers at a reduced fee for each license.

3. Site license – used at a particular location by multiple computers.
Ch. 4 – Study Guide

• Give four examples of creations that would be considered intellectual property.
• Name four things that the right of intellectual property provides protection for.
• Name four types of copyright violations.
• What are the two types of intellectual property recognized by the World Property Organization (WIPO)?
• How does copyright law distinguish between ideas and the expression of ideas?
• What does U.S. copyright law (Title 17 of the U.S. Code) provide a copyright holder?
• The Digital Millennium Copyright Act (1998) extended software copyrights to what?
• Inventions and new ideas are protected by ______________ law.
• Expressions of ideas, algorithms and formulas are protected by ______________ law.
• Name the four categories of software piracy.
• Not all software has copyrights. Name the four types of software products and their copyright and distribution status.
• Give an example of the local impact of *intellectual property laws*.

• Give an example of the global impact of *intellectual property laws*.

• Give an example of ethical principles related to *intellectual property laws* and their application in leadership. For example, in what context (education, government, business, etc.) might leadership be effective in preventing intellectual property violations.

• Give an example of the legal dimensions of *intellectual property*. For example, what major legislation is used to deal with intellectual property?

• In what ways (if any) does the ACM professional code deal with *intellectual property*?