

# IntellectualProperty

## EthicsandComputing Chapter8

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## Motivation

- Mostnewideasinthecomputerfield  
involveintellectualproperty
- Intellectualpropertymustbeprotectedto  
promotedevelopmentofnewanduseful  
things

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## U.S. Constitution

- Article 1, Section 8
- “Congress shall have the power... to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”

## ACM Code of Ethics

- General moral imperatives 5 and 6
  5. Honor property rights including copyrights and patents
  6. Give proper credit for intellectual property.

## IEEE Code of Ethics

### ■ Item 7

7. Seek, accept, and offer honest criticism of technical work, acknowledge and correct errors, and *credit properly the contributions of others* .

## AITP Standards of Conduct

- Not use or take credit for the work of others without specific acknowledgment and authorization.

## Software Engineering Code

- Principle 5.9
- Ensure that there is a fair agreement concerning ownership of any software, processes, research, writing, or other intellectual property.

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## Intellectual Property

- Non-physical product created through intellectual effort
- Legal issue: Opportunity for profit
- Protection intended to
  - ◆ Preserve motivation to develop new and useful things
  - ◆ Enforce fairness in business dealings

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# IntellectualPropertyProtection

- Patents
- Copyrights
- Tradesecrets

# Patents

- FirstU.S.patentlawsignedbyGeorge Washingtonin1790
- U.S.PatentandTrademarkOffice(PTO)
- Goodfor20years
  - ◆ Thenopentopublic

## Patent Eligibility

- Any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof
- Must satisfy tests of novelty, originality, utility, and nonobviousness

## Patent Eligibility Tests: *Novelty*

- Invention must be new relative to “prior art”
  - ◆ All existing technology that can be reasonably known to someone working in the field
- Cannot have been described in print or offered for sale, even by applicant, prior to one year before patent application date

## Patent Eligibility Tests: *Originality*

- Applicant for patent must be the actual inventor
- Patent granted in the name of a person or persons
- Rights may be assigned to a corporate entity

## Patent Eligibility Tests: *Utility*

- Invention must be able to do what it is claimed to do
- Function must serve some purpose or need
- The purpose or need must be legal and moral

## Patent Eligibility Tests: *Nonobviousness*

- Obvious if someone with ordinary skill in the area and access to prior art considers the invention obvious
- Distinct from similar patents in the area
- Documented significant effort by people of ordinary skill in the area

## Obtaining a Patent

- PTO application
  - ◆ Describe invention and how to make it
- Based on “date of first invention”
- Reexamination
- PTO board of appeals
  - ◆ Federal court
  - ◆ U.S. Supreme court



## Patent Issues

- Employer/employee patent rights
- Patent rights can be transferred or sold
- Infringement
- International patents
  - ◆ Duration, origin, disclosure
- On-line patent searches
  - ◆ [www.uspto.gov](http://www.uspto.gov)

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## Copyrights ©

- Intended to protect ownership of original creative and artistic works
- Work need not be published
- Protect expression of idea, not idea itself
  - ◆ Can use different algorithm to accomplish same purpose
  - ◆ Can use copyrighted algorithm for a different purpose

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## Obtaining a Copyright

- You have one as soon as work fixed in some tangible medium
- Can apply for a registered copyright with the Copyright Office
  - ◆ Useful for infringement protection
- Good for life of author plus 50 years

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## Copyright Use and Infringement

- “First sale” rule except for easily copied material
- Protects against translation to other languages
- Infringement requires access and substantial similarity
- E.g., plagiarism

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## Software Piracy

- Global losses ~ \$13 billion per year
- Penalties: 5 years prison and \$250,000 fine
- Some countries do not honor IP treaties
- Organizations against software piracy
  - ◆ Business Software Alliance
    - ◆ [www.bsa.org](http://www.bsa.org)
  - ◆ Software and Information Industry Association
    - ◆ [www.siiia.net](http://www.siiia.net)

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## Trade Secrets

- Useful when you do not want the idea in the public domain
- Non-disclosure agreements used to control transmission of idea
- “No compete” agreement to prevent competition from ex-employees
- Not governed by federal law
  - ◆ Laws vary across jurisdictions

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## Other IP Issues

- Reverse engineering
  - ◆ Ethical when used for understanding and improvement
  - ◆ Unethical when used just to duplicate
- “Look and feel” copyrights
  - ◆ Some protection
  - ◆ Still being refined in courts

## Software Patents

- Patent protection for
  - ◆ Hardware control software?
  - ◆ System software?
  - ◆ Pure algorithm?
- Do software patents “...promote the progress of science and useful arts”?

## Points to Remember

- Illegal and unethical
  - ◆ Knowingly infringe on a valid patent or copyright, including copying copyrighted software
  - ◆ Hire someone away from another company to obtain trade secrets
  - ◆ Violate a valid non-disclosure or “no compete” agreement

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## Points to Remember

- Unethical
  - ◆ Make claims in a patent application when prior art invalidating the claims is known to exist
  - ◆ Use false claims of patent infringement to intimidate competitors
  - ◆ Appropriate other's ideas and present them as your own
  - ◆ Use unreasonable clauses in a “no compete” agreement

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## Points to Remember

- Few, if any, new ideas are developed without influence from existing ideas.
- Intellectual property protection is intended to promote, not stifle, the development of new ideas.

## Resources

- U.S. Constitution  
[www.nara.gov/exhall/charters/constitution](http://www.nara.gov/exhall/charters/constitution)
- U.S. Patent and Trademark Office  
[www.uspto.gov](http://www.uspto.gov)