

Lect. #20: Intellectual Property (IP)



dilbert.com/strips/comic/2009-09-09/

Agenda for Today



1. Copyrights in the U.S.



2. Patents in the U.S.



3. Other IP

Announcements

- “Transitioning from College to the Workplace – What It Was Like for Me,” Emma Clawson, SEL, Th 11.3.22
- “Moving up the Career Ladder,” Tyler Walker, Microsoft, Th 11.10.22
- “How to Work Remotely,” Erin Mullen, Zapier, Th 11.17.22
- Questions?

IP: Thought Experiment

- We can own property (physical property)
- We can design a circuit board (intellectual property)
- Is there a difference between the two kinds of property?
- Can we own the design in the same way we own the property?



accountingweb.com
dreamstime.com

IP: Thought Experiment (cont.)

- We can write a computer program
- Is there a difference between owning the computer program and owning the circuit board design or the property?
- In what sense can we own a computer program?

```
'''
'''
for i, met_pos in enumerate(met_list):
    if 0 <= met_pos[1] < height:
        met_pos[1] += speed
    else:
        met_list.pop(i)
        score += 1
return score

def detect_collision(player_pos, met_pos, player_d
'''
Non-void function that checks to see whether a
each other. If they do, then True is returned
returned. Called by collision_check(). playe
giving x and y coordinates. met_pos is also a
and y coordinates. player_dim and met_dim are
player and meteors, respectively.
'''
p_x, p_y = player_pos[0], player_pos[1]
m_x, m_y = met_pos[0], met_pos[1]
if (m_x >= p_x and m_x < (p_x+player_dim)) or
_dim)):
    if (m_y >= p_y and m_y < (p_y+player_dim))
+met_dim)):
        return True
    return False
```

IP: What should be protected?

- We agree that it's (usually) morally wrong to steal someone's physical property
- What about someone's intellectual property? Is it morally wrong to:

- copy a painting?
- copy software?
- copy a book?



- download instructions for building an Aston Martin?
 - www.facebook.com/ReplicaDB4/
 - 3D printer cost \$500, plastic cost \$2k, 2500 parts (75% of printing completed by 2013); no progress after 2017 until 2021 (photos, Aug. 2017 & Mar. 2022; last post 10.15.22); \$139K to \$3.5M

Poll

Is it ethical to build an Aston Martin from instructions available on the internet (we'll ignore the legality)?

A. Yes

B. No

C. Other

Copyrights: Very Brief History of U.S. Copyright Law

- **1787:** “Congress shall have the power ... to promote the Progress of Science and the useful Arts, by securing for limited Times to authors and inventors the exclusive Rights of their respective Writings and Discoveries.”
- **1790:** Books, maps, and charts added
- **1909:** Anything visible and readable by humans added
 - Player pianos exempted (1908)
- **1980:** Computer programs added
 - Must demonstrate “original expression of ideas”
- **1998:** Extended to lifetime_of_author + 70 years; DMCA passed

Copyrights: What are they and what do they cover?

- Copyright law is a form of long-term legal protection for original works of authorship
- Copyright law applies to both published and unpublished work
- Copyright law protects creative works, e.g.,
 - books
 - art
 - architecture
 - music, dance, plays, songs, lyrics
 - quilt patterns
 - web pages
 - computer software
 - poetry

www.copyright.gov/help/faq/faq-protect.html

Copyrights: What don't they cover?

- There are lots of things that aren't protected by copyright law, e.g.,
 - domain names
 - names of bands
 - stars, asteroids, mountains, etc., that are named after you
 - your sightings of Elvis (although it will protect photos of your sightings)
 - recipes
 - names, titles, slogans, or short phrases

www.copyright.gov/help/faq/faq-protect.html

Copyrights: DMCA

- Digital Millennium Copyright Act (DMCA) passed in U.S. in 1998
- Criminalizes production and dissemination of technology, devices, or services that circumvent measures controlling access to copyrighted works
- Criminalizes circumvention of access whether or not copyright infringement has occurred
- Increases penalties for copyright infringement on the internet
- Exempts ISPs et al. from direct or indirect violations of copyrights



Copyrights: How to Copyright Something

- For most works, we're not required to publish or register our copyrighted material
- Copyright occurs automatically as soon as we've created something original in some tangible form
- We don't need to use the copyright mark: ©
- Federal government works can't be copyrighted
- To copyright a photo of an Elvis sighting, must fill out form, pay a fee, and attach a copy of the photo

Copyrights: Rights of Copyright Owners

If we have a copyrighted work, we have the exclusive right to:

- reproduce it
- create derivative works from it
- distribute it (sell, rent, or lend)
- perform it publicly (unless it would be a violation of some law to do so)
- display it publicly (unless it would be a violation of some law to do so)

Copyrights: Doctrine of Fair Use

Doctrine of Fair Use: Copyrighted material can be used by others depending on how it's used

1. Purpose and nature of the use (commercial, non-profit, educational)

=> *Commercial use less likely to be fair use*

2. Nature of the copyrighted work (creative or factual)

=> *Creative, published work less likely to be fair use*

3. How much of the copyrighted work is used relative to the entire work

=> *The more of a work used, the less likely it's fair use*

4. What impact use has on the potential market for or value of the copyrighted work

=> *Use reduces sales of work, less likely to be fair use*

Copyrights: Doctrine of Fair Use

Use Case: Dilbert Comic Strips in CptS/EE 302 Lectures

1. Purpose and nature of the use (commercial, non-profit, educational)

=> Maybe educational; certainly non-profit

2. Nature of the copyrighted work (creative or factual)

=> Definitely creative and published

3. How much of the copyrighted work is used relative to the entire work

=> Maximum number: ~20; book with 6,500 published in 2008

4. What impact use has on the potential market for or value of the copyrighted work

=> No impact on sales

Poll

Is the use of Dilbert comic strips in lectures covered by the Fair Use Doctrine?

A. Yes

B. No

C. Other

Copyrights: Doctrine of Fair Use

Use Case: Google Books

Google has made digital copies of millions of books and printed materials submitted by libraries. Anyone can search through these using Google Books which works just like a web search, and more than 10 million books are free to download because they're in the public domain. Other books are free to preview by permission of the publishers or because they're out of copyright. You can find out where to buy or borrow books still copyrighted using links from them, and you can also buy the ebook from the Google Play Store.

Breakout Discussion (4 min)

- Apply Fair Use Doctrine to Google Books, i.e., Google digitizing as many books and other printed materials and making everything available via Google Books
- Decide whether Google Books is covered by the Fair Use Doctrine
- We'll do a voice poll of your decisions

Copyrights: Doctrine of Fair Use

Use Case: Google Books

Google has made digital copies of millions of books and printed materials submitted by libraries. Anyone can search through these using Google Books which works just like a web search, and more than 10 million books are free to download because they're in the public domain. Other books are free to preview by permission of the publishers or because they are out of copyright. You can find out where to buy or borrow books still copyrighted using links from them, and you can also buy the ebook from the Google Play Store.

1. Purpose and nature of the use
(commercial, non-profit, educational)
=> Commercial use less likely to be fair use
2. Nature of the copyrighted work
(creative or factual)
=> Creative, published work less likely to be fair use
3. How much of the copyrighted work is used relative to the entire work
=> The more of a work used, the less likely it's fair use
4. What impact use has on the potential market for or value of the copyrighted work
=> Use reduces sales of work, less likely to be fair use

Copyrights: Doctrine of Fair Use

Use Case: Google Books

- Authors Guild v. Google case filed in Sep. 2005, ended in Apr. 2016
- Claim was violation of Fair Use Doctrine
- In initial settlement, Google agreed to pay \$125M to various entities
- Settlement agreement required court approval, but court rejected it, believing that while the digitized library would be beneficial to many, it would give Google a *de facto* monopoly
- District court ruled in favor of Google, i.e., violation did not occur
- Second circuit appeals court upheld decision
- U.S. Supreme Court declined to review the case

Patents: Very Brief History of U.S. Patent Law

- **1641:** First U.S. patent granted for a new way of creating salt
- **1790:** Patent Act of 1790 first U.S. patent law: “An Act to promote the progress of useful Arts,” passed to grant inventors "sole and exclusive right and liberty of making, constructing, using and vending to others to be used" of their work; duration up to 14 years
- **1836, 1849:** Patent Office became part of the State Department then moved to Department of the Interior; now part of the Department of Commerce
- **1952:** Modern patent law established in Patent Act of 1952; inventors had to prove three conditions met
- **Current:** U.S. considers patents as a means of technological advancements and economic stability for the common good of the U.S. and humanity as a whole

Patents: What are they and how do they work?

- Patents protect inventions or processes that satisfy three conditions:
 - Usefulness
 - Novelty
 - Non-obviousness
- Patent owners have up to 20-year exclusive monopoly, but clock starts when patent is filed; can take years to be granted
- Inventors must file for a patent (patent lawyers are well paid; second only to corporate lawyers)
 - Time consuming and expensive:
 - >\$16k for software-related invention such as a business program (www.upcounsel.com/how-much-does-a-patent-cost)

Patents: Patent Wars

- **1874:** Alexander Graham Bell and Elisha Gray engage in patent war over telephone
- **1906:** Wright Brothers gain patent for controlling a “flying machine”; a “patent war” ensued
- **1980s:** Patent wars between US and Japanese tech companies
- **1990s and beyond:** Issue of software patents has led to many patent wars; now multibillion dollar business
 - Antivirus software (Trend Micro, Integralis, McAfee, Symantec)
 - One-click ordering (Amazon v. Barnes & Noble)
 - Digital cameras (Sony v. Kodak)
 - Smartphones (Apple v. Google, Samsung v. Apple, Apple v. Samsung, and many more): In 2012, NYT reported \$20B spent in two years over smart phones

Patents: Patent Wars

Ethical Issues

- Patent troll:
 - person or company whose main purpose is to sue other people or companies for patent infringement
 - a company that uses patent infringement claims to win court judgments for profit or to stifle competition
 - a person, company, etc., that holds and enforces patents in an aggressive and opportunistic manner, often with no intention of marketing or promoting the subject of the patent
 - a company or a person that buys patents from insolvent and financially unstable companies so that they can benefit by charging licensing fees on the patent infringers
- Patents can be used *offensively* to block competition
- Patents can be used *defensively* for protection

investinganswers.com/dictionary/p/patent-troll
www.investopedia.com/terms/p/patent-troll.asp
[www.wordnik.com/words/patent troll](http://www.wordnik.com/words/patent%20troll)
thebusinessprofessor.com/patent-troll-definition

IP: Trademarks vs Trade Secrets

- Trademark: a distinctive word, name, phrase, symbol, color, etc., that distinguishes a product or service
 - Protected by trademark law
 - AOL v. AT&T: “You’ve Got Mail”
- Trade secret: highly valuable information crucial to a company and known by only a few
 - Protected by Uniform Trade Secrets Act, but act varies somewhat by state
 - Secret must be actively maintained



Poll

Who do you think won the AOL v AT&T “You’ve Got Mail” trademark lawsuit?

- A. AOL
- B. AT&T
- C. The lawyers
- D. Nobody

IP: Employment Contracts

Be sure to read and understand a contract for employment before you sign it! It may include some or all of the following:

- **Non-Compete Clause:** Ensures that you won't engage in any business, employment, or activity that competes with your employer after you leave (must be reasonable in scope and duration)
- **Non-Disclosure Clause:** Ensures that you won't disclose confidential information to anyone
- **Assignment of Intellectual Property:** Ensures that IP is assigned to your employer
- **Employment Separation Agreement:** A document that outlines the terms of termination between an employee and employer; by signing this, an employee waives their right to sue for wrongful termination or additional severance pay
- **Liquidated Damages:** Damages included in a contract to compensate for a potential breach of contract