


CSE312/ISE312

Gift of Fire, Fourth edition by Sara Baase



Read: Section 4.1-4.2
https://en.wikipedia.org/wiki/Digital_watermarking


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What We Will Cover

- Intellectual Property (IP)
- Principles, Laws, and Cases
- Responses to Copyright Infringement

Corresponding page number: 179



Legal Protection of IP

- Copyright – for creative works (e.g., books, music, works of art)
- Patents - a set of exclusive rights granted by a government to an inventor or his assignee for a limited period of time in exchange for a disclosure of an invention
- Trade marks – name, word, logo, symbol, etc. used to identify a product and/or service

Corresponding page number: 180




Copyright Holders Have Exclusive Rights

A copyright is valid for the lifetime of the author plus 70 years

- To make copies
- To produce derivative works, such as translations into other languages or movies based on books
- To distribute copies
- To perform the work in public (e.g. music, plays)
- To display the work in public (e.g. artwork, movies, computer games, video on a Web site)


“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;” US Constitution



Principles, Laws, and Cases

- U.S copyright Law (Title 17 of U.S. Code) gives copyright holder following exclusive rights:
 - To make copies
 - To produce derivative works, such as translations into other languages or movies based on books
 - To distribute copies
 - To perform the work in public (e.g. music, plays)
 - To display the work in public (e.g. artwork, movies, computer games, video on a Web site)

Corresponding page number: 182




Challenges of New Technology

- Broadband connections Individuals (not just companies) can now easily
- New compression technologies infringe a copyright
- Miniaturization of cameras and other equipment
- Scanners
- Advanced search for images/video
- Inexpensive storage
- Peer to peer networks
- New tools - modify graphics, video and audio files to make derivative works.

Is the intent of the US Constitution still being served through current copyright laws and practice?

Corresponding page number: 183



Copyright History ...

- 1790 first copyright law passed in US (1710 in UK)
- 1909 Copyright Act of 1909 defined an unauthorized copy as a form that could be seen and read visually
- 1976 and 1980 copyright law revised to include software and databases; included the "Fair Use Doctrine"
- 1982 high-volume copying of records and movies became a felony
- 1992 making multiple copies for commercial advantage and private gain became a felony


Corresponding page number: 185-186



... Copyright History

- 1997 No Electronic Theft Act made it a felony to willfully infringe copyright by reproducing or distributing one or more copies of copyrighted work with a total value of more than \$1,000 within a six-month period
- 1998 Digital Millennium Copyright Act (DMCA)
 - prohibits making, distributing or using tools to circumvent technological copyright protection systems
 - included protection from some copyright lawsuits for Web sites where users post material
- 2005 Congress made it a felony to record a movie in a movie theater

Corresponding page number: 186




Fair Use Doctrine

©

Is the use of the copyright image fair use?

- Goals
 - Promote production of useful work
 - Encourage the use and flow of information
- Examples
 - Quoting a portion in a review
 - Education (even making multiple copies)
- Four factors considered
 - Purpose and nature of use – e.g., commercial
 - Nature of the copyrighted work (novel less likely)
 - Amount of significance or portion used
 - Effect of use on potential market or value of the copyright work (will it reduce sales of work?)
- No single factor alone determines
- Not all factors given equal weight

Corresponding page number: 187




Ethical Arguments

- Copying or distributing a song or computer program does not decrease the use and enjoyment any other person gets from his or her copy
- Copying can decrease the amount of money that the copyright owner earns
- Copying enables users to try out products, eventually benefiting the copyright owner
- Fair use guidelines are useful ethical guidelines

Do you consider your possible unpaid use of copyright material to be unethical?


Corresponding page number: 187-188



Sony v. Universal City Studios (1984)

- Supreme Court decided that the makers of a device with legitimate uses should not be penalized because some people may use it to infringe on copyright
- Supreme Court decided copying movies for later viewing was fair use
- Arguments against fair use
 - People copied the entire work
 - Movies are creative, not factual
- Arguments for fair use
 - The copy was for private, noncommercial use
 - movie studios could not demonstrate harm
 - The studios had received a substantial fee for broadcasting movies on TV, and the fee depends on having a large audience who view for free

Corresponding page number: 190-191



Reverse Engineering Game Machines

- Reverse engineering: game machines
 - Sega Enterprises Ltd. v. Accolade Inc. (1992)
 - Atari Games v. Nintendo (1992)
 - Sony Computer Entertainment, Inc. v. Connectix Corporation (2000)
 - Courts ruled that reverse engineering does not violate copyright if the intention is to make new creative works (video games), not copy the original work (the game systems)

Machine code is decompiled
in lieu of a published API

Corresponding page number: 191




Napster ...

- Napster's arguments for fair use
 - Sony decision allowed entertainment as fair use
 - Did not hurt industry sales because users sampled the music on Napster and bought the CD if they liked it
- RIAA's (Recording Industry Association of America) arguments against fair use
 - "Personal" meant very limited use, not trading with thousands of strangers
 - Users were copying whole songs
 - Claimed Napster severely hurt sales
- Court ruled sharing music via copied MP3 files violated copyright

Do you agree with the court decision?

Corresponding page number: 192-193



... Napster

Do you agree with the court decision?

- Was Napster responsible for the actions of its users?
- Napster's arguments
 - Protected if considered a search engine, (protected under the DMCA)
 - Did not store any of the MP3 files
 - Technology had substantial legitimate uses
- RIAA's arguments
 - Napster did not take sufficient steps to prevent copyright violations
 - Napster was not a device or new technology and the RIAA was not seeking to ban the technology
- Court ruled Napster liable because they had the right and ability to supervise the system, including copyright infringing activities

Corresponding page number: 192-193



File Sharing: MGM V. Grokster

- Grokster, Gnutella, Morpheus, Kazaa, and others provided peer-to-peer (P2P) file sharing services
 - The companies did not provide a central service or lists of songs
 - P2P file transfer programs have legitimate uses
- Lower Courts ruled that P2P does have legitimate uses
- Supreme Court ruled that intellectual property owners could sue the companies for encouraging copyright infringement

Corresponding page number: 194-195




Principles, Laws, and Cases

Discussion Question

- *What do you think the impact would be on creative industries, such as music, movies and fiction novels, if copyright laws did not protect intellectual property or protected them for a shorter period (e.g., 5 years)?*

Corresponding page number: 192-194




Look and Feel

- Refers to features such as pull-down menus, windows, icons, and finger movements and specific ways they are used to select or initiate actions
- Reflects major creative effort by programmers
- Not usually protected

What are some examples of copying a look and feel?

Has not having copyright protection helped the computer industry?

Corresponding page number: 195-196



Responses from Content Industry

- Ideas from the software industries
 - Expiration dates within the software
 - Dongles (a device that must be plugged into a computer port)
 - Copy protection that prevents copying
 - Activation or registration codes
 - Court orders to shut down Internet bulletin boards and Web sites
- Banning, suing and taxing
 - Ban or delay technology via lawsuits (CD, DVD, MP3 players)
 - Require that new technology include copyright protections
 - Tax digital media

Are these actions effective?

Corresponding page number: 196-198




International Piracy

- Some countries do not recognize or protect intellectual property
- Countries that have high piracy rates often do not have a significant software industry
- Many countries that have a high amount of piracy are exporting the pirated copies to countries with strict copyright laws
- Economic sanctions often penalize legitimate businesses, not those they seek to target

Does the absence of a standard approach to international copyright protection make any US protection obsolete?

Corresponding page number: 197



Digital Rights Management

Digital Rights Management

- Collection of techniques that control uses of intellectual property in digital formats
- Includes hardware and software schemes using encryption
- The producer of a file has flexibility to specify what a user may do with it
- Apple, Microsoft and Sony all use different schemes of DRM

What are your experiences with DRM circumvention?

Corresponding page number: 200-201

DMCA (1998)

The Digital Millennium Copyright Act

- Anticircumvention
 - Prohibit circumventing technological access controls (DRM) and copy-prevention systems
- Safe harbor
 - Protect Web sites from lawsuits for copyright infringement by users of site


Corresponding page number: 201

Digital Watermarks

- Information covertly embedded in a noise tolerant signal (e.g., audio, video, image)
- Does not change the size of the carrier signal
- Robust against changes to the signal
- Term is based on identification marks produced during a paper making process




Corresponding page number: 202



DMCA Vs. Fair Use

- DeCSS – a program that defeats scrambling of movies
- U.S. courts have banned technologies such as DeCSS even though it has legitimate uses, while courts in other countries have not
- Protesters published the code as part of creative works (in haiku, songs, short movies, a computer game and art)
- U.S. courts eventually allowed publishing of DeCSS, but prohibited manufacturers of DVD players from including it in their products

Corresponding page number: 202-203




Safe Harbor

- Industry issues "take down" notices per the DMCA
- As long as sites like YouTube and MySpace comply with take down notices they are not in violation
- Take down notices may violate fair use, some have been issued against small portions of video being used for educational purposes

Are take down notices effective?

Corresponding page number: 204-206



Evolving Business Models

- Organizations set up to collect and distribute royalty fees (e.g. the Copyright Clearance Center),
- Sites such as iTunes and Spotify provide legal means for music distribution (generates revenue)
- Content-sharing sites enable the posting of content and share their ad revenues with content owners in compensation
- Cloud storage raises copyright issues.
 - Is copying legally purchased files to and from the cloud a fair use?
 - Will the companies operating the cloud services have any responsibility for unauthorized content their customers store and share?
 - Since copyright holders do not see what is stored, they do not have the option of sending takedown notices.

Corresponding page number: 206-207