CS 4984
Software Patents

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How do you protect software?

- Copyrights
- Patents
- Trademarks
- Trade Secrets
- Contract
- Technology (encryption)

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U.S. Constitution, Art. I, § 8

Congress shall have 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

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What is a Patent?

- A grant by the government of a right to exclude others from practicing (i.e., making, using, selling, offering to sell, and importing) a particular invention for a set period of time.
- It does not assure that the patentee can practice the invention himself.
- Patents = personal property. Can be assigned, sold, given away, inherited, mortgaged, and licensed.

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Purpose of the Patent System

- Incentive to help promote progress of the useful arts.
- *Quid Pro Quo* (between the inventor and the U.S. Government)
- Legal pseudo-monopoly in exchange for complete disclosure
- A patent does not take anything away from the public, but actually contributes something that the public did not previously have.

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What's Patentable?

- 35 U.S.C. 101:
  - Whoever invents or discovers any <u>new</u> and <u>useful</u> *process, machine, manufacture, or composition of matter, or any new and useful improvement thereof*, may obtain a patent therefor, subject to the conditions and requirements of this title.

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What's Not Patentable?

- Laws of nature
- Discoveries
- Natural phenomena
- Abstract ideas

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Types of Patents

- Utility Patents
  - protect utilitarian inventions, both animate and inanimate
- Design Patents
  - protect new, original and ornamental designs for manufactured goods
- Plant Patents
  - protect new and distinct plant varieties that have been reproduced by asexual means
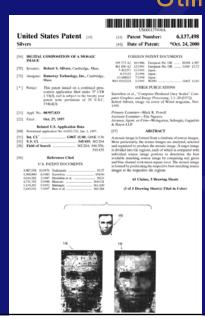
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= U.S. Patent No.
6,137,498

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Utility Patent

1. A method for generating a mosaic image with an appearance that approximates a target image by utilizing a plurality of source images and a computer, comprising the steps of:

loading the target image into the computer;

dividing the target image into a plurality of tile regions, each tile region representing a distinct locus of the target image, and

for each tile region:

dividing the tile region into distinct sub-regions;

comparing generally complex source images to the tile region to produce a measurement of visual similarity, said comparing step including comparing each sub-region of the tile region with a corresponding portion of each source image to produce the measurement of visual similarity;

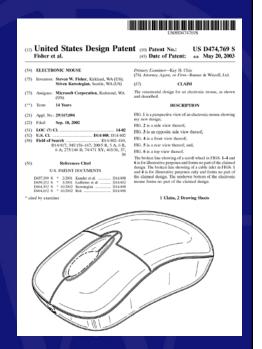selecting the source image with the highest measurement of visual similarity to represent the tile region; and

positioning the selected source image in the mosaic image at a locus corresponding to the locus of the tile region.

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Design Patent

- U.S. Pat. No. D474,769 for an Electronic Mouse

Term of a Utility Patent

- 20 years from the filing date
- Enforcability begins when patent issues
- Terms typically average about 16-18 years

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Utility Patent Requirements

- A written application, filed in the name of the inventors, including:
  - *Enabling disclosure* so that one skilled in the art can make and use the invention.
  - *Best mode* contemplated by the inventor of carrying out his invention. Not typically reviewed in the Patent Office.
  - At least one *claim.* The claims define the metes and bounds of the invention.
- Government filing fee

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Claim Requirements

- *Utility*: Minimum amount of usefulness.
- *Novelty*: Must be new.
- *Nonobviousness*: If it would have been obvious to one of ordinary skill in the art to modify a prior device (or software) and arrive at the claimed invention, then the claim is not patentable. (Can consider other evidence of nonobviousness).

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Utility Patent Publication

- Published at 18 months unless opt out under certain circumstances
- Damages can accrue from date of publication if claim issued is substantially similar to published claim.

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Design Patents
How do they differ from Utility patents?

- Protects original and ornamental designs for articles of manufacture
- Term = 14 years from date of issuance
- Designs can be in the shape of the object, surface ornamentation, or both

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I'm just an idea…
Now what do I do?

- Patent Application
- Persuade USPTO it's new, useful, and nonobvious
- Patent Issued
- Litigate in Court

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Patent Examination Process

- Preparation and filing of application.
- Patent examiners examine for clarity, utility, novelty, nonobviousness, enablement, and other requirements.
- Amendments of claims, requests for reconsideration, and appeals of final rejections are permitted.
- Once all of the claims are declared allowable, an issue fee may be paid and the patent will be officially granted.

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Enforcement of Patents

- Marking the products covered by the patent with the patent number (U.S. Pat. No. *,***,***) provides constructive notice
- A patentee can SUE for infringement of the patent, and receive an injunction to prevent infringement and also can receive damages (i.e., MONEY!)
- Suit for infringement must be brought within 6 years of the alleged infringement.

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Utility Patent Infringement

- *literal infringement:* correspondence to each element or step in the claim.
- *doctrine of equivalents:* if it includes elements or steps which are substantially similar to the missing elements or steps.
- Improved products do not avoid infringement if they still include all of the claimed elements or steps.

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Remedies for Infringement

- Injunctions
- Damages adequate to compensate for infringement, but in no event less than a reasonable royalty
- Lost Profits
- Infringer's profits (design patent infringement only)
- Increase damages up to 3 times for willful infringement
- Attorneys fees to the prevailing party in exceptional cases

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Preserving Patent Rights

- Watch out for pitfalls:
  - On sale bar
  - Public use bar
  - Printed publications
- Keep detailed records
  - Dates of conception and reduction-to-practice
  - Enabling disclosures
- Foreign Patents?
  - Avoid public disclosures
  - Use non-disclosure agreements

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On-Sale Bar

- Must file no later than 1 year after the invention is offered for sale *in the United States.*
  - Single offer for sale is enough.
  - Acceptance NOT required.
- Sale must be:
  - Commercial Offer for Sale
  - Invention ready for patenting (RTP or enabling disclosure)
- Article sold or offered for sale can be used as prior art against you.

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On Sale Bar Example

- Improvements to the sold article might still be patentable.
- Example 1:
  - September 22, 2003: Offer for sale for A, B, &C
  - September 23, 2004: Application for A, B, & C
  - Not OK
- Example 2
  - September 22, 2003: Offer for sale for A, B, & C
  - September 23, 2004: Application for A, B, C, & D
  - OK (but A, B, & C is prior art)

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Public Use

- Must file no later than 1 year after the invention is publicly used *in the United States.*
- Public use by anyone, including the inventor.
- Secret uses for commercial benefit by anyone
    - E.g., a secret method in a factory producing toys
- Use by anyone other than the inventor w/o obligation of confidentiality, even if not for commercial benefit
    - E.g., wearing a corset under a dress
- Private, noncommercial use by inventor: OK
- Limited exception: Experimental Use

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Printed Publications

- Must file within 1 year of date of publication of a printed publication *anywhere in the world.*
- Adequate description (i.e., enabling).
- *Available* to public in *tangible* form.
- Obvious Examples
    - Patents, Books, Newspapers, Magazines
- Not so obvious examples
    - Web sites, Conference papers, White Papers
    - Single copy of thesis available from 1 remote library!

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Conception/RTP

- Conception
  - Date on which the inventor originally conceived of the inventive idea
  - First to conceive gets patent rights in U.S. as long as s/he was diligent to…
- Reduction to Practice
  - Actual reduction to practice (prototype)
  - Constructive reduction to practice (patent application)

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Enabling Disclosure

- Drawings or other descriptions of the invention that are sufficiently specific to enable a person of ordinary skill in the art to practice the invention
- If you have an enabling disclosure, you are subject to on sale bars and printed publication bars.
- Be safe… File A Patent Application!

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Provisional Applications

- Serve as a 1-year date holder
- Same legal requirements
- Less formal administrative requirements
- Lower filing fee
- *Use only in case of an emergency!*

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Foreign Patent Rights

- Can be lost as a result of ANY public disclosure prior to filing patent application
- Must file within 1 year of earliest U.S. filing date (provisional or non-provisional application)
- Patent Cooperation Treaty (PCT) application can protect in multiple countries

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Cases

- *Diamond v. Diehr*, 450 U.S. 175 (1981).
- *In re Alappat*, 31 USPQ2d 1545, (Fed. Cir. 1994).
- *State Street Bank v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998).
- *Amazon.com Inc. v. Barnesandnoble.com Inc.*, 57 USPQ2d 1747 (Fed. Cir. 2001).
- *In re Buchner*, 929 F.2d 660 (Fed. Cir. 1991)
- *Mossman v. Broderbund Software*, 51 USPQ2d 1752 (E.D.Mich 1999).
- *Egbert v. Lippmann*, 104 U.S. 333, 336 (1881).
- *Pfaff v. Wells* Elecs., 525 U.S. 55 (1999)
- *In re Hall*, 781 F.2d 897 (Fed. Cir. 1986).

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