



Intellectual Property

CMPUT 603
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Consider these issues...

- Borrowing a CD? Copying a CD?
- Borrowing a CVD? Copying a DVD?
- Recording a movie for later viewing?
- Emailing an article? Loaning a magazine?
- Copying a textbook? A novel?
- Sharing copies of articles from a magazine in class?
- Taking excerpts from an author without his permission? Selling copies of the book?

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Intellectual Property

- At first, books, maps etc. protected by law.
- Later, this needed to be expanded.
- *Intellectual property legislation aims to protect the intangible creative work, not necessarily the physical form in which it is expressed*
- Computer programs, algorithms etc. fit into this realm somewhere...

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Intellectual Property Law

- The Canadian Intellectual Property Office (CIPO) administers the IP system in Canada and disseminates IP information. Their aim is to accelerate Canada's economic development by:
 - fostering the use of intellectual property systems and the exploitation of intellectual property information;
 - encouraging invention, innovation and creativity in Canada;
 - administering the intellectual property systems in Canada
 - promoting Canada's international intellectual property interests.

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Canada's IP system

- Made up of the following forms of protection:
 - Trade-marks
 - Patents
 - Copyrights
 - Industrial designs
 - Integrated circuit topographies
- These are national laws – you need to file/register separately in other countries if marketing abroad

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Intellectual Property

- Trade-marks
- Patents
- Industrial designs
- Integrated circuit topographies
- Copyrights

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Trade-Marks

- A trade-mark is a word, symbol or design, or a combination of these, used to distinguish the goods or services of one person or organization from those of others in the marketplace.
- Cannot register proper names, descriptive words (“delicious” ice cream), places of origin (“Taber” corn), ...

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Trade-Marks

- Registered and Unregistered Trade-Marks
 - Registered trade-mark has been approved and entered into register of trade-marks office. Registration is proof of ownership.
 - Unregistered trade-mark may be recognized through Common law as property of the owner, depending on the circumstances. Registration is recommended.
- Registration valid for 15 years and renewable every 15 years.

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Intellectual Property

- Trade-marks
- Patents
- Industrial designs
- Integrated circuit topographies
- Copyrights

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Patents

- Patents are government grants that give inventors exclusive rights to their inventions.
- Patents are granted for *products or processes* that are new, workable and ingenious (novel, useful and inventive). In this way, patents serve as a reward for ingenuity.
- Patents cover a *physical embodiment*, not an abstract idea, an algorithm, a scientific principle, a law of nature or a mental process.

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Patents

- In Canada, patent protection extends for 20 years from the date of filing.
- Patents do more than keep creative wheels spinning. They are an important means of sharing know-how, because each patent document describes a new aspect of a technology in clear and specific terms and is available for anyone to read.

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Patents

- 18 months after a patent application is filed, the document is made public.
 - Aim: to promote the sharing of knowledge. Patents are vital resources for businesses, researchers, inventors, academics and others who need to keep abreast of developments in their fields.
- In Canada: a patent is given to the first inventor who files an application. It's wise to be quick in filing for your patent!

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Intellectual Property

- Trade-marks
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- Industrial designs
- Integrated circuit topographies
- Copyrights

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Industrial design

- An industrial design is the features of shape, configuration, pattern or ornament (or any combination thereof) applied to a finished article.
- It may be, for example, the shape of a table or the ornamentation on the handle of a spoon.
- The article can be made by hand, tool or machine.

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Registering your industrial design

- No protection without registration
- Once registered, industrial designs are available for public inspection - wise to apply for registration before marketing your product.
- Protection lasts 10 years since date of registration (if you pay maintenance fee)
- If your design is an artistic work, it is automatically protected by a copyright and you can register it as such
- However, in most cases if you use the design as a model or pattern to produce 50 or more manufactured articles, you can protect it only by an industrial design registration.

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Intellectual Property

- Trade-marks
- Patents
- Industrial designs
- Integrated circuit topographies
- Copyrights

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Integrated Circuit Topography

- The *Integrated Circuit Topography Act* came into force on May 1, 1993.
- Refers to the three-dimensional configuration of the electronic circuits used in microchips and semiconductor chips.
- Registration offers you exclusive rights for 10 years on your original circuit design. Protection can extend to the layout design as well as to the finished product.
- To register, you must apply within two years of commercial use of the design. Your application must include a copy of the circuit layout and design.

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Intellectual Property

- Trade-marks
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- Copyrights

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Copyright Legislation Canada

- 1924 - Original Canadian Copyright Act
- 1989 - Phase I amendments (Bill C-60) strengthened the right of creators by allowing them to form organizations to collect licensing fees from users
- 1999 - Phase II amendments (Bill C-32) introduce rights which provide royalties to producers of sound recordings, levy on blank audio tapes, some exceptions for educational institutions, archives, museums, people with perceptual disabilities.

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Copyright

- Copyright is the exclusive right to copy a creative work or allow someone else to do it. It includes the sole right
 - to publish, produce or reproduce
 - to perform in public
 - to communicate a work to the public by telecommunication
 - to translate a work
 - to rent the work (in some cases)
- Anyone who does such things without the permission of the copyright holder is infringing their rights.

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Copyright

- Copyright applies to all original literary, dramatic, musical and artistic works, including:
 - Books & other writings
 - Music (including sound recordings such as records, cassettes, and tapes)
 - Sculptures & paintings
 - Photographs, films, plays, T.V. & radio programs
 - Performers' performances and communication signals
 - Computer programs

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Copyright

- Canadian copyright does not apply to
 - Themes
 - Ideas
 - Most titles
 - Names
 - Catch-phrases
 - Other short-word combinations of no real substance

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Who owns the copyright?

- The creator of the work;
- The employer, if the work was created in the course of employment unless there is an agreement to the contrary;
- The person who commissions a photograph, portrait, engraving or print for valuable consideration (which has been paid) unless there is an agreement to the contrary;
- Some other party, if the original owner has transferred his or her rights.

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How long does copyright last?

- Generally, copyright in Canada exists for the life of the author plus 50 years following his or her death (but some exceptions do exist)

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Copyright Infringement

- If you publish, perform or copy anyone else's work without their permission you are infringing their rights.
- Plagiarism: Copying someone else's work (or substantial parts of it) and claiming it as your own.

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Copyright Infringement

- **Music:** You are permitted to make a copy of a musical tape for private use because a royalty payment to the owners was paid when blank tape was purchased.
- **Movies:** Making a copy of a videocassette movie protected by copyright is infringement, even if you watch it in your own home.

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Blank Media Levy

- Applies to "blank audio recording media"
- Collected regardless of the purchaser's end use of media
- Canadian Private Copying Collective distributes proceeds
- Levies: \$0.24 for Audio Cassette tapes, \$0.21 for MiniDisc, CD-R, CD-RW (audio and non-audio)
- No levy on MP3 players, iPod: Court Decision (Dec 2004). New application by Copyright Board of Canada (Feb 2007).

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Fair Dealing (Fair Use)

- "Fair dealing" with a work for purpose of private study or research, for criticism, review, or news reporting is not infringing on copyright.
- "Fair dealing" can be difficult to assess, e.g. how many words can be quoted
- Exceptions for different users:
 - Educational institutions
 - Libraries, archives, museums
 - Persons with perceptual disability

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Copyright Infringements

- reprinting an article without the copyright owner's permission;
- playing records at a dance without the copyright owners' permission;
- giving a public performance of a play without permission;
- photocopying articles for a class of students without permission; and
- taping your favourite band at a music concert without permission.

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No copyright infringement

- Quoting a few lines of the article in a research paper (fair dealing);
- playing records at home;
- giving a public performance of a play by Shakespeare (no copyright exists/public domain);
- obtaining permission from the author and paying a fee to him or her (if requested) in order to use an article; and
- borrowing a musical tape from a friend to copy onto a blank tape for private use (a royalty payment to the owner of the song rights has been paid when the blank tape was purchased).

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Software

- Canadian Patent Act does not mention **software** inventions
 - exclusion list minimal: "No patent shall be granted for any mere scientific principle or abstract theorem."
 - Patent Rules, Courts interpreting act and rules
- Canadian Intellectual Property Office (CIPO)
 - sets guidelines for patentability
 - new chapter 26 of Manual of Patent Office Practices drafted for the review of computer implemented inventions and business methods
- Only court decision: Schlumberger **Canada** (1981)

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Issues for Software Developers

- Should you Copyright or Patent Software?
- Copyright
 - Protect the expenses of a idea in a fixed and tangible form
 - Cheap, easy to obtain, lasts a long time
 - Allow fair use of the intellectual property
- Patent
 - Protect new, non-obvious and useful processes
 - Expensive, difficult to obtain, lasts for short period of time
 - Allow licensing to other developers

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Why is Software Different

- Software is both the process and the product
 - One 'product' is a combination of many possibly patentable processes, leading to extremely complex license negotiations
 - As with other non-rivalrous information processes, there is no separation between creation and "mass production"
- Software can be
 - created/used in manufacturing processes
 - created/distributed using manufacturing methodologies
 - created/used/distributed entirely outside a manufacturing context
- Software patents not generally read (or written) by those skilled in art. Some avoid reading patents to not be 'tainted'.

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Ethics

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Philosophical Foundations

Ethics (moral philosophy) involves systematizing, defending and recommending concepts of right and wrong behavior.

- Meta-Ethics
- Normative Ethics
- Applied Ethics

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Metaethics

- Investigates where our ethical principles come from.
- Metaphysical Issues
 - Do morality and ethical rules exist independently of humans (moral realism) or are they human conventions (moral relativism)?
- Psychological Issues
 - What motivates humans to be moral?

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Normative Ethics

- Arrive at moral standards that regulate right and wrong conduct, based on a single principle or a set of foundation principles. Assume that there is one ultimate criterion of moral conduct.
- Example – Golden Rule
Treat others as you want to be treated.

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Professional Ethics

Professional Ethics

- Differences between general ethics and professional ethics:
 1. Professional is an expert in a field that customers know little about, so they rely on the knowledge, expertise and honesty of the professional.
 2. Products of many professional profoundly affect life, health, finances, freedom, future of a large numbers of people. Professional can cause great harm through dishonesty, carelessness, or incompetence.

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Professional Ethics

Most important documents:

CIPS Code of Ethics & Standards of Conduct

ACM Code of Ethics and Professional Conduct

ACM / IEEE CS “Software Engineering Code of Ethics and Professional Practice”

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Canadian Information Processing Society (CIPS)

- CIPS Code of Ethics and Professional Conduct
- Five Ethical Principles
 - Protecting the public interest and maintaining integrity
 - Demonstrating competence and quality of service
 - Maintaining confidential information and privacy
 - Avoiding conflict of interest
 - Upholding responsibility to the IT profession

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1. Protecting the Public Interest and Maintaining Integrity

CIPS members protect the public interest and discharge with integrity all duties and services owed to the public, Information Technology (IT) professionals, clients or employers.

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2. Demonstrating Competence and Quality of Service

CIPS members owe their client or employer a duty to be competent to perform any IT service undertaken on such a party's behalf. CIPS members serve their client or employer in a conscientious, diligent and efficient manner by providing a high quality of service and by not undertaking a matter without honestly feeling competent to handle it.

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3. Maintaining Confidential Information and Privacy

CIPS members hold in strict confidence all information concerning the business and affairs of the client or employer without exception.

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4. Avoiding Conflict of Interest

CIPS members do not place personal or professional interests, or those of colleagues, above interests of the public and/or client or employer, and avoid situations where there is a significant risk that the interests of the member may conflict with the public and/or client or employer.

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5. Upholding Responsibility to the IT Profession

CIPS members assist in maintaining the integrity of CIPS and the IT profession. They support and advance the interests of CIPS and the IT profession, and respect the rights and professional aspirations of their colleagues.

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Ethical Analysis

■ Brainstorming Phase

- List risks, issues, problems, consequences
- List all people and organizations affected
- In cases where there is no simple yes-or-no decision, but rather on has to choose some actions, list possible actions.

■ Analysis Phase

- Identify responsibilities of the decision maker (wrt general and professional ethics)
- Identify rights of stakeholders
- Consider the impact of the action options on the stakeholders. Analyze consequences, risks, benefits, harms, for each action considered.
- Identify Sections in Ethics Code

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Research Ethics

Research Ethics

- Set of principles to assist community of researchers in deciding which goals are most important in reconciling values.

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Social Foundations of Science

- To what extent should and do social concerns and cultural values direct the course of scientific investigation?
 - How much autonomy?
 - How much responsibility to societal concerns?
- Direct social influence through research incentives, grant programs, requests for proposals
- Indirect social influence through culturally based interests

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Ethical Conduct

- Careful evaluation of ethical acceptability of research program
- Comply with all research regulations on
 - Human subjects
 - Laboratory animals
 - New drugs
 - Dangerous materials (e.g. radioactive substances)

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Conflict of Interest

Management of conflict of interest to protect integrity of scientific process, institutions, investment in institutions (companies, students, parents), industrial sponsorships, and public confidences in integrity of research

Disclosure of conflict of interests is crucial

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Treatment of Data

- Facilitate independent verification of scientific observations to minimize the individual bias in research
- To be extremely clear about methods being used to gather and analyze data

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Openness

- Unpublished results are protected: Grant reviews and manuscript reviews are confidential
- Share research material after publication for re-analysis and review

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Publications

- Social conventions of science important for establishing reliability of scientific knowledge
- Peer review of results before publication
- Publication of results with credit to authors
- Avoid publishing same data multiple times
- Free use of published results

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Allocation of Credit

- Credit is acknowledged in three places
 1. List of Authors
 2. Acknowledgement of contributions of others
 3. List of references of citations (including "personal communications")
see also Plagiarism

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Authorship Practices

- Who should be on the author list? Order?
- Order dependent on importance of contributions
- Order dependent on position in career (senior investigator often last)
- Avoid “honorary” authors
- Discuss with supervisor

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Errors and Negligence

- Errors in data collection and data analysis are not preventable
- Important to keep precise records on data collection and data analysis
- Describe methods precisely
- Keep high standards
- Poor scientific standards will backfire

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Misconduct in Science

- Falsification and fabrication of data
- Plagiarism and false reporting of credentials
- Cover-up of misconduct
- Reprisals of whistleblowers
- If you find a problem, discuss it with supervisor, chair, etc.

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Research involving Humans

Tri-Council (NSERC, CIHR, SSHRC) policy statement on ethical conduct for research involving humans

According to the Tri-Council Policy Statement on "Ethical Conduct for Research Involving Humans", all research involving humans that is conducted under the auspices of the Institution must receive ethics review and approval from an intra-mural Research Ethics Board.

The policy statement can be found on my website

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