Benefits of Open Source Practices

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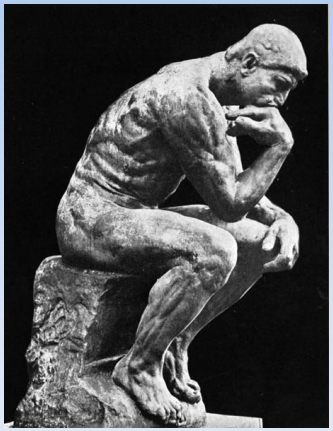
What is Open Source?

- A philosophy
- A methodology



Promotes access to the end product's source materials

- Applies to:
  - software
  - hardware
  - anything
- Opposite? "Closed source"

Mainstream Open Source Software

- Firefox

- Audacity

- GIMP

- Inkscape

- Linux

- OpenOffice/
  LibreOffice

Free Software vs Open Source

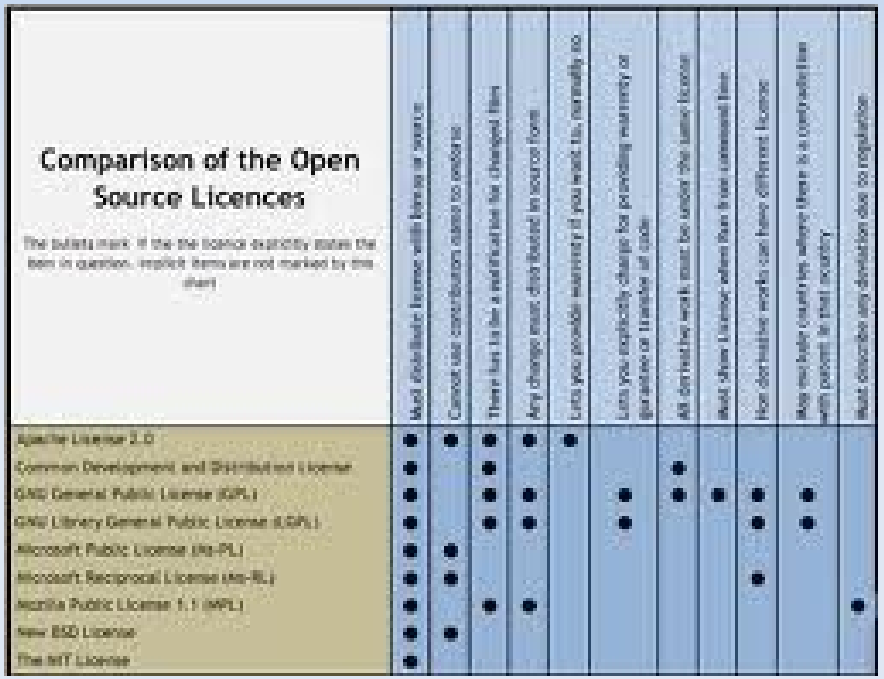
- “Free as in freedom, not free as in beer”
- "libre" vs "gratis"
- “Open source is a development methodology; free software is a social movement. For the Open Source movement, non-free software is a suboptimal solution. For the Free Software movement, non-free software is a social problem and free software is the solution."

Open Source Licenses

- What can you do with the object/software?
  - Modify it?
  - Distribute it?
  - Sell it?
  - Place restrictions on what the next person does with it?
- Heavy overlap with patent law and copyright law
- Open Source Initiative (OSI) (http://opensource.org)
  - A Standards Body
  - Maintains a list of "OSI Approved" licenses

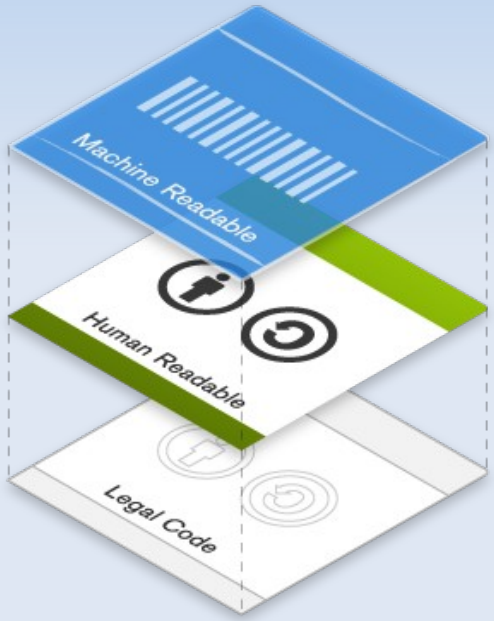
Open Source Licenses (Cont.)

- GPL (some call it poison!)
- Apache
- BSD



Non-software Licenses

- Creative Commons licenses
  - Legal
  - Human readable
  - Machine readable
  - Automatically determine the usability of a resource!



Business Models

- If everyone uses your product, they will want to know who you are, and pay you for something.

- Kitware
  - Support
  - Training
  - Government contracts

- Arduino
  - Consultants

Business Models (cont.)

- Dual licensing
  - GPL
  - Commercial license

Open Source in Scientific Research

- Often researchers have to reinvent the wheel

- Though previous work is "published", without an available implementation it is impossible to tell if it really works

- "If you haven't tested it on your own computer with your own data, you must assume it doesn't work"

Open Source in Computer Vision/Image Processing

- Insight Toolkit (ITK, www.itk.org)
  - Multi-million $ grants from NIH, etc

- OpenCV (opencv.willowgarage.com)
  - Uses their software as a lure to sell their robots!

- Visualization Toolkit (VTK, www.vtk.org)

Open Source Software

- Distributed

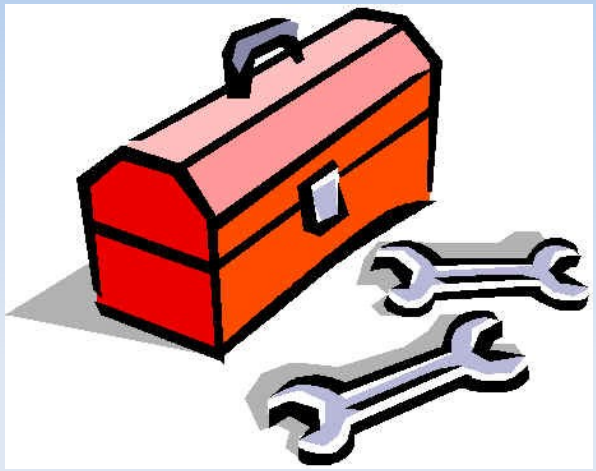
- Peer reviewed

Benefits to you

- A wide audience for your work
- Free help
- Meeting people with similar interests
- Progressing the state of the art
- *Accelerating* the state of the art
- Doing humanity a service

Benefits to others

- Future users can...
  - use your work
  - give feedback
  - find bugs in your work
  - improve upon your work

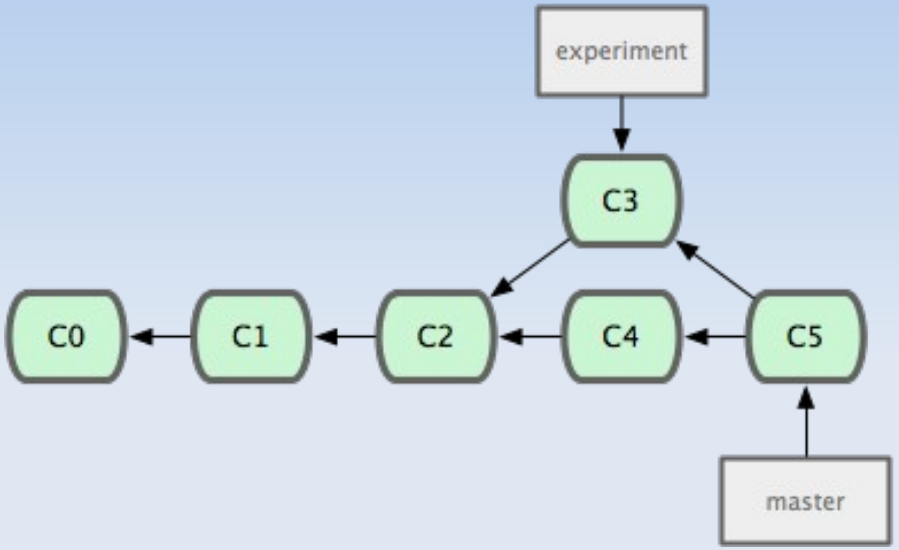


Where to share your work?

- “Social coding”
  - Sourceforge
  - Github
  - Gitorious
- Online journals
  - Insight Journal

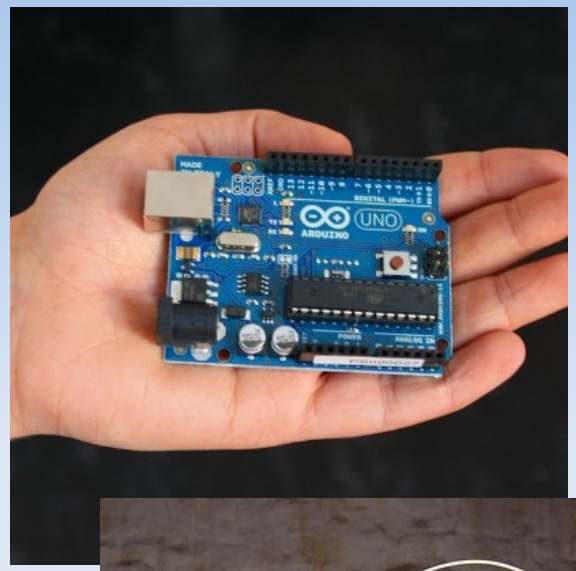
Revision Control

- Extra bonus!
- Revision history
- Backup



Open Source Hardware

Electronics Prototyping - http://www.arduino.cc/



3D Printer - MakerBot - http://www.makerbot.com/

- Schematics
- Components lists
- Assembly instructions

Other Open Source Things

http://freebeer.org/

http://www.opensoda.org/

Resources

- OSI website, great reference for licenses
- RPI course – Open Source Software Practices
  - Instructor: Luiz Ibanez

- Rensselaer Center for Open Source (RCOS)

Rensselaer | CENTER FOR OPEN SOURCE SOFTWARE

Questions?