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PIX: John Tonkin
Lalila

SUGGESTED TITLES(S):

SOFTWARE IMAGING SYNTHESIS

COPY

"The art of programming is in the design stage - a lot of people sharing code for a long time who all fed back responses,i"
Linus Torvalds

The conclusion of my last article for Photofile, 'Thinking Imaging Software'[ii] forsaw the blooming of artists building image manipulation software tools across the internet as the next stage for artists who wished to free themselves of the limitations of proprietry 'industry' applications like Adobe Photoshop. Whilst artists and photographers have excelled at the adaption of tools for the purposes they need, the tools they have invented, like the camera itself, has changed the way we comprehend ourselves.

Computers are useless bits of hardware without software applications - these are the instructions that interpret the commands that are given with keyboard, mouse etc. They are expressed to the hardware with a program that has been prepared using instructions, or source code, written by a programmer in a language capable of expressing logical sequences. Like any written material, it can represent many hours of labour and therefore is often kept secret.

Most programmers use programming objects. An object is an independent section of code that performs a particular function. Object-Oriented Programming (OOP), for instance, uses objects that can work together to create a whole program and relieves programmers of the need to re-create sections of code in long programs. The same object can be used again and again, or be revised with small variations between each outcome and it is this approach that accounts for the existence of 'open source' libraries of objects, or components, that can be accessed over computer networks such as the internet for specific and originating purposes.

The awarding of the Ars Electronica prize in 1999, the Golden Nica, to Linus Torvalds[iii] acknowledged firstly that the Linux operating system, though not in itself .net art, had enabled art to be delivered using a source code accessible to everyone, and secondly that it had been produced collaboratively by large numbers of people of various skill levels working collectively on the project over the Internet. The Free Software Foundation[iv] , in the context of a software industry with strict control over its property, have defined specifically the intervention they are making into contemporary notions of intellectual property (IP) "freedom to learn, freedom to teach, freedom of competition, freedom of speech and freedom of choice" or in more direct terms 'free as in free speech, not free beer.' The legal founding of the GNU General Public License (GNU/GPL) and the term 'copyleft', together with websites and listservers devoted to supporting these freedoms have been instrumental in a blossoming of a miriad of projects of every kind, all employing source code that is freely available to participating developers (as well as individual practitioners under GNU/GPL). And, with marketing and research notebooks open, the multinational software companies sit in the wings - there are big distinctions here between Free Software (FS) and Open Source software (OS).[v] The open source approach to software development does not imply that the outcomes are to be freely available.

As Josephine Berry has observed: "…closed or proprietary models of commercial software production can be said to ring-fence innovation by unfairly claiming individual or corporate authorship of the latest spin-off of a radically collective history of software production in the computer sciences. Copyrighting and closing the source code of a piece of software also artificially narrows its potential future adaptations and condemns it

to the stifling monotony of a fixed identity (product), altered only by the strictly controlled modifications that will lead to its release as an upgrade: the illusion of innovation and difference in a regime of unwavering homogeneity." [vi]

Image manipulation has been central to the development of digital media and digital culture. In the 70s, the analogue print culture provided economical access to web off-set lithographic printing and introduced to the art book and community newspaper fringes of a burgeoning print industry the notion of cut-and-paste. The technology and production methods coincided with the emerging computer technologies and reprography, graphics and print invested heavily in the promises of the hardware manufacturers and software engineers. The corporatised and proprietry applications which are now almost household names - Photoshop, Pagemaker, Quark etc,- began to emerge with a host of others at this time.

The success and the degree of market penetration obtained by Photoshop can be gauged from the Linux-based, freely downloadable, facsimile application GIMP (GNU Image Manipulation Program). What distinguises this version of Photoshop from Photoshop itself, apart from the fact that you can legally use it without paying for it? As Mr Snow puts it: "GIMP has low level hooks into the programme, so that you can push and pull data of any kind through it." The GIMP website gives a good idea of how it came together as a project and is like entering a workaday studio with invisible action happening behind the pages of links – if you want a new plug-in for instance, there are at least 30 coders different efforts to choose from, and thereby is the difference from the Adobe site. Just start developing a relationship with the person who knows how to do this, email them about what it is you are doing and are trying to achieve. This is personal contact, not a marketing department, and hopefully a code artist will reciprocate if your art appeals to them. Who knows where the relationship might lead?

GNU Photo is a related free software application for retrieving, organizing, web-authoring and storing images in various graphics file formats, or for display directly to a monitor from a range of supported digital still cameras. It is like iPhoto, the 'free' application that comes with the Mac OSX operating system, but unlike iPhoto, can be adapted to

specific requirements. The range of software, even for the Macintosh, is huge and found in a variety of places for a wide range of cost. The industrial product costs big bucks and will deliver industrial functionality – fixed features and reliability – while the GNU/GPL is a tool that like freeware and shareware, can often be in a state of constant flux. But conceivably, the user can customise it to their own requirements, possibly, by subscribing to a listserv, with someone you have never met who lives on the other side of the world.

GIMP.org is one of the many specialist sites[vii] devoted to a software program freely available under GNU, initially developed for Unix but with versions for other platforms in development. Opensource.org[viii] is a non-profit advocating a range of licensing options, including the FSF GNU/GPL, to all kinds of developers and users. Sites like Sourceforge,[ix] are different, being gateways to the wider 'open source scene', for finding out what is happening, where it is and who's doing it, across all operating systems and all manner of motivation. It is like a bazaar for the talent and the talent scouts, a workshop and distribution point for the developer industry where all sorts of mostly established coders rub keyboards, often anonymously, working on both proprietry and non-proprietry projects. For instance a recent open source project is the Xbox Linux Project which will make use of all the hardware in the Xbox games consule to allow an installation of GNU/Linux operating system and run open source software as with an ordinary computer but at much less cost.[x]

The electronic music movement has been for years at the forefront of artists writing the software they need. Sound art has followed closely behind. In 1997 a software team at IRCAM[xi], a pre-eminent cultural organization in Paris that had developed the MAX family of music software, released MAX/MSP. This was a visual programming environment for interactive real-time music and multimedia – an 'object patcher', licensed annually to users. Making mixes of sound could be set-up and controlled through a graphical user interface (GUI) rather than by writing code for the Macintosh operating system. Plug-ins or 'mini-programs' that hang-off the side of the parent application started becoming available to extend the signal processing capability to include video. In 2000, jMax became available which was very similar, but ran on the Linux operating system, and like Linux itself, had been developed over the internet as an 'open source' collaborative project. Like most

software tools developed for Linux, jMax is free software distributed under the GNU/GPL.

Sound artists Lalila are similar to musicians making live performances and they use computers to feed sound systems and data projectors. Their earlier practice was underpinned by aesthetics and technology, having commenced with photography (Katherine Gadd) and architecture and saxophone (Etienne Deleflie). Development over the last three years has been one of converging media, with their work maturing into "an exciting collaboration, breaching the technical / creative divide." The breach occurred at the point the software they had been working with - standard linear timeline software such as Cubase and Protools - were becoming too cumbersome to adapt to the kinds of aesthetics they were seeking beyond the popular dance music of that time.

The genesis of Lalila occurred with the realization that the kind of flexibility Gadd and Deleflie were seeking came down to working with software kernels, like jMax, which could be further refined and developed using acquired code-writing skills (learnt in the same way as any other language might be learnt). The time investment was a committed one. Six months to install Linux on the host computer; two months to install jMax and then another 12 months to have success with the customizing of software ('objects') to Lalila's requirements, in effect to enable the generation of sounds through real time analyses of the characteristics of videos chosen from a digital library of footage. "…video is analysed in real time, generating sounds. We only allow ourselves to manipulate the video, meaning that video is our musical instrument - so we function in a video image manipulation space but the aim is building an audio performance." Thus they are able to make available to all, on their website,[xii] "an extensive library of video data stream manipulation objects, which can be used seamlessly with audio manipulation objects."

These are controllable by selection and processing through the MIDI instruments. Customising jMAX to these needs was in conjunction with two other collaborators, more experienced in the fields of code writing and jMax, one in Germany, the other in Canada. Lalila now share their code-writing talents with the international community who tend to cluster around specific objectives and interests, and have found that the pride of contributing abilities is a motivating factor across 'the movement'. The

ranges of expertise are wide but each contribution is regarded seriously as a learning process for all, with stages where outcomes become apparent but where the process never ends. Lines of code from one project might conceivably end up in another but as Deleflie observes, “It is like receiving a complement when I see someone else using my code.”

“Open source is when you publish the code….” Free Radio Linux, was set-up by ex-Adelaide resident Honor Harger on Radioqualia xiii, one of the many projects facilitated by Adelaide groupVirtual Artists [xiv] “Free Radio Linux is an online and on-air radio station. The sound transmission consists of a computerized reading of the code used to create the operating system, … Each line of code will be read by the computerised automated voice - a speech.bot built by ra d i o q u a l i a. …The Linux kernel contains 4,141,432 lines of code. Reading the entire kernel will take an estimated 14253.43 hours, or 593.89 days. Free Radio Linux began transmission on February 3, 2002, the fourth anniversary of the term, Open Source.”

John Tonkin started out in 1985 with one of the first personal computers, an Acorn, writing programs to make images copied frome by frame with an 8mm camera. Two years later he was producing prize-winning work like the continuosly falling stream of A4 sheets, ‘these are the days’. Through the 90s he perfected his ability to get behind coding approaches and methods before settling on the Java language developed by the big corporate Sun Microsystems. [xv]

Strange Weather is a new work, a visualisation tool for making sense of life. The project is being developed using the programming language Java, and involves the writing of custom data storage, analysis, charting and visualisation software. Strange Weather consists of a database and a set of visualisation tools. The database component stores information entered by users over the web or in the installation. It consists of a number of seemingly obscure and unrelated personal indicators inspired by a 19th century Italian scientist named Cesare Lombroso. The data visualisation component uses various 2 and 3 dimensional imaging to reveal patterns and underlying relationships in the data. "If I drink 2 coffees a day, get 8 hours sleep and my bank balance is above $500 then my average heart rate at moment of orgasm goes up to 140 bpm." The work enables the user to attempt, as chaos theory suggests, to track the

consequences of their small actions on global events. "hmmm, when the consistency of my shit is soft, I get less than 6 hours sleep, and spend more than 3 hours online the Dow Jones Index falls".

The creative arts reflect cultural diversity and can engender social change through the kind of machinations possible on the internet. [xvi] It is perhaps no accident that the significant difference Linux is bringing about within the use of open source code can be connected to the context in which its 'first generation leader', Linus Torvalds, operated. He is a Finn whose mother tongue is Swedish and he is one of those, as the linguist Professor Martin Vermeer has observed, who are not at home in one national culture only, but in several, whether on or off-line. "…language is the gateway into a nation's culture and way of life…knowing one more language inevitably widens one's perspective…. Literacy today means also computer or IT literacy and becomes an impossibility if not even the operating system is available in localised form. … Open source offers an easy and attractive way to localise all software…" [xvii]

The localisation of tools of computer literacy are no less important than the continuing development of specialized tools by artists engaged with the development of visual literacy and for the production of visual art in the digital era.

END

Caption for image sequence:
Level of Detail, (2001) Mr Snow
Java3D generates a three-dimensional model image from a live video camera feed. The Java application is built in the NetBeans Development Environment, the open source version of Sun's Forte / ONE Studio IDE.
http://laudanum.net/trancept/level_of_detail/

(NB Another image option - permission not obtained yet – please confirm need)

Caption: 'JJ Network Surveillance Tool and Empathetic Data Visualization' [xviii] (2002) Golan Levin.

JJ is a free software (Windows) Carnivore client, one of several interfaces designed and programmed to process the network data supplied over the internet by a separate program, Carnivore, the winner of the 2002 Ars Electronica Golden Nica. http://www.rhizome.org/carnivore/

'JJ scans his host network for text packets, reading each packet one word at a time. When JJ finds a word that matches a term in the LIWC dictionary, his emotional state (represented as an array of affective activation levels [ML. I think he means facial expressions!]) is updated in response to that word's emotional associations. JJ then displays a (morphed) mixture of facial expressions, weighted according to the current intensity of his different emotions. Considered cumulatively, JJ's expressions reflect the overall "mood" of his information environment in an extremely simple, yet direct and unmistakable way.

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[i] Linus Torvalds, during a satellite hook-up at the ORF Landesstudio, Linz, Austria, September 1999.

[ii] Mike Leggett, 'Thinking Imaging Software' Photofile #60 ACP, Sydney 2000

iii At the award of the Golden Nica at the Ars Electronica 99 for .net art was awarded not to an artist but, by invitation, to Linus Torvalds, who described himself as 'a leader of the first generation' of Linux operating system software engineers.

iv Free Software Foundation (FSI) http://www.fsf.org/ and FSI Europe http://www.fsfeurope.org/. The Sarai Foundation in Delhi has produced an excellent Reader (2001) On The Public Domain. http://www.sarai.net/ Access 1.2.2003.

v op cit

vi Josephine Berry, Open_Source_Art_Hack exhibition catalogue essay (2002): http://netartcommons.walkerart.org/ Access 1.12.2002

vii GIMP, written by Peter Mattis and Spencer Gimball; http://www.gimp.org

viii http://www.opensource.org/site_index.php

ix Sourceforge : http://www.sourceforge.org/ is operated by Open Source Development Network, Inc.,(a subsidiary of VA Software Corporation – 'productivity. efficiency. control.') and services a staggering 8 million individual visits per month, which indicates the degree to which the software engineers are trading. They also operate Slashdot, a discussion site, http://www.slashdot.org and host Freshmeat, the first stop for Linux users hunting for the software they need for work or play. http://freshmeat.net/about/

x Xbox Linux Project http://xbox-linux.sourceforge.net Access 1.1.2003

xi IRCAM (L'Institut de Recherche et Coordination Acoustique/Musique), founded in 1973 by Pierre Boulez in the basement of the Beauborg. www.ircam.fr Access 1.1.03
xii Lalila - Katherine Gadd and Etienne Deleflie: http://www.lalila.net/ Access 1.1.03
xiii Radioqualia, www.radioqualia.net/ Access 1.2.2003
xiv Virtual Artists are based in Adelaide – Jesse Reynolds et al http://www.va.com.au Access 5.2.2003
xv Having observed the way in which the open source movement had begun to develop, the company decide to follow suite and release the source code for Java, thus creating that subtle distinction between community good and corporate profits.
xvi See also Mediumi web journal – issue 1.4 'open source' (2003)
http://www.m-cult.net/ and then select English, then mediumi. Access 1.2.2003

xvii Prof Martin Vermeer is a research professor at the Finnish Geodetic Institute. From an article 'Linux and Ethnodiversity' originally on http://linuxtoday.com/ .
xviii 'JJ' via http://www.rhizome.org/carnivore/