LEGGETT

oftware
maging
ynthesis

The conclusion of my last article for Photofile, 'Thinking imaging software'[2] foresaw the blooming of artists building image manipulation software tools across the internet as the next stage for those who wished to free themselves of the limitations of proprietary 'industry' applications like Adobe Photoshop. Whilst artists and photographers have excelled at the adaptation of tools for the purposes they need, the tools they have invented, like the camera itself, have 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 or mouse. 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 recreate sections of code in long programs. The same object can be used again and again, or it can 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 in 1999 of the *Ars Electronica* prize, the Golden Nica, to Linus Torvalds[3] 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 (FSF),[4] 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 Licence (GNU/GPL) and the term 'copyleft', together with websites and listservers devoted to supporting these freedoms have been instrumental in a blossoming of a myriad 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).[5] 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.[6]

Image manipulation has been central to the development of digital media and digital culture. In the seventies, the analogue-print culture provided economical access to web offset 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 proprietary applications that are now almost household names – Photoshop, Pagemaker, Quark and so on – began to emerge with a host of others at this time.

The success of Photoshop can be gauged by comparison with the Linux-based, freely downloadable, facsimile application GIMP (GNU Image Manipulation Program). What distinguishes this version of Photoshop from Photoshop itself, apart from the fact that you can legally use it without paying for it? As computer artist Mr Snow puts it: "GIMP has low-level hooks into the program, 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 therein 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? Yet the inflexibly packaged Photoshop maintains a considerable market lead.

GNU Photo is a related free software application for retrieving, organising, 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 prices. 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, users can customise it to their own requirements, possibly by subscribing to a listserve, with someone you have never met who lives on the other side of the world.

Daniel Crooks
Beach Static No.1 2003
digital type C print
20 x 180cm
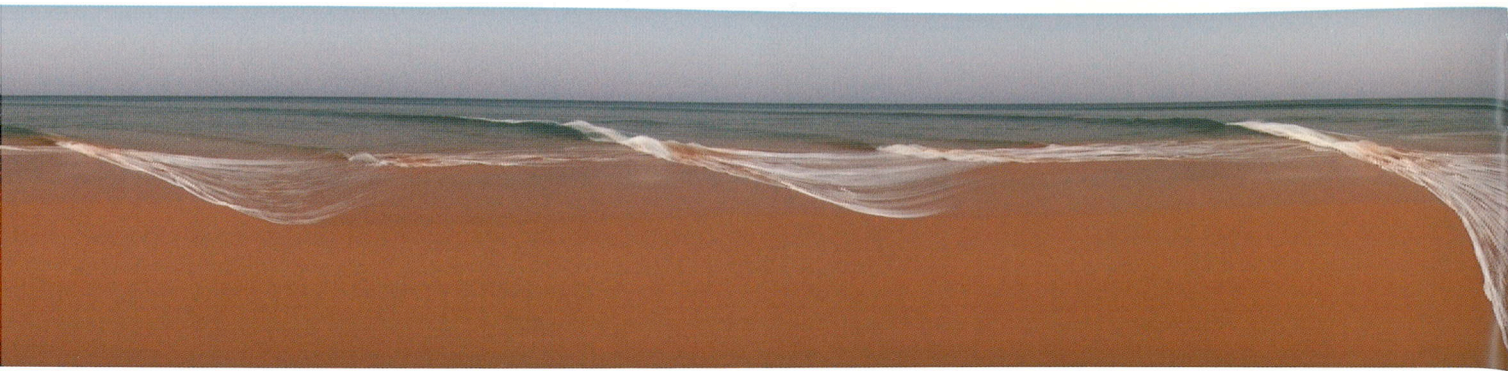
...one of the many specialist sites devoted to a ...m freely available under GNU, initially ...ix but with versions for other platforms in ...opensource.org[8] is a non-profit advocating a ...g options, including the FSF GNU/GPL, to all ...rs and users. Sites like Sourceforge,[9] are ...gateways to the wider open source scene, for ... is happening, where it is and who's doing it, ...ng systems and all manner of motivation. It is ...the talent and the talent scouts, a workshop ...point for the developer industry where all sorts ...shed coders rub keyboards, often anonymously, ...proprietary and non-proprietary projects. For ...t open source project is the Xbox Linux Project, ...use of all the hardware in the Xbox games ...an installation of GNU/Linux operating ...run open source software as with an ordinary ...much less cost.[10]
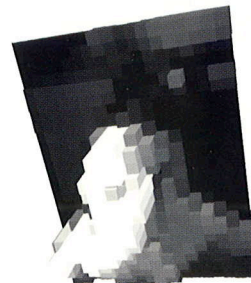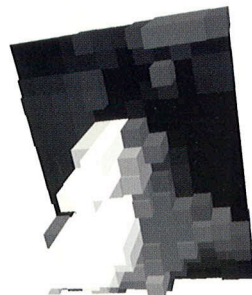
...ic music movement for years has been at the ...s writing the software they need. Sound art ...sely behind. In 1997 a software team at ...eminent cultural organisation in Paris that had ...AX family of music software, released ...was a visual programming environment for ...ime music and multimedia – an 'object ...d annually to users. Making mixes of sound ...controlled through a graphical user ...ather than by writing code for the Macintosh ...n. Plug-ins or 'mini-programs' that hang off ...rent application started becoming available ...al processing capability to include video. In ...me available. It was very similar, but ran on ...ing system and, like Linux itself, had been ...he internet as an open source collaborative ...t software tools developed for Linux, jMax is ...tributed under the GNU/GPL.

...Lalila are similar to musicians making live ...d they use computers to feed sound systems ...rs. Their earlier practice was underpinned by ...chnology, having commenced with ...herine Gadd) and architecture and ...nne Deleflie). Over the last three years their ...loped by converging media, with their work ...exciting collaboration, breaching the ...e divide". The breach occurred at the point the ...d been working with – standard linear timeline ...Cubase and Protocols – was becoming too ...adapt to the kinds of aesthetics they were ...the popular dance music of that time.

...of Lalila occurred with the realisation that the ...Gadd and Deleflie were seeking came down to ...ware kernels, like jMax, which could be further ...loped using acquired code-writing skills (learnt ...as any other language might be learnt). The ...was substantial: six months to install Linux on ...er; two months to install jMax and then another ...velop the customising of software ('objects') to ...ents, in effect to enable the generation of ...real-time analyses of the characteristics of ...m 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, "an extensive library of video data stream manipulation objects, which can be used seamlessly with audio manipulation objects".[12]

These video data stream manipulation objects are controllable by selection and processing through the MIDI instruments. Lalila customised jMAX to these needs 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 other international collaborators

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,[13] one of the many projects facilitated by the group Virtual Artists.[14]

Free Radio Linux is an online and on-air radio station. The sound transmission consists of a computerised 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 Radioqualia …The Linux kernel contains

Mr Snow
Level of Detail 2001
Java3D generates a
three-dimensional
model image from a
live video camera feed
http://laudanum.net/tra
ncept/level_of_detail/

4,141,432 lines of code. Reading the entire kernel will take an estimated 14,253.43 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 frame by frame with an 8mm camera. Two years later he was producing prize-winning work like the continuously falling stream of A4 sheets, *These Are the Days*. Through the nineties he perfected his ability to get behind coding approaches and methods before settling on the Java language developed by the big corporate player Sun Microsystems.[15]

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 two- and three-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

Lalila
Maria Island Fete 2002
video stills from
performance

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.[16] 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 only one national culture, but in several, whether on- or offline. "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…"[18]

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

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< Notes >

1 Linus Torvalds, during a satellite hook-up at the ORF Landesstudio, Linz, Austria September 1999

2 Mike Leggett 'Thinking imaging software' *Photofile* 60 Australian Centre for Photography, Sydney 2000 pp26–29

3 The award of the Golden Nica for .net art was presented 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

4 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 *On the Public Domain 2001*: http://www.sarai.net/ Access 1.2.2003

5 op cit

6 Josephine Berry *Open_Source_Art_Hack* exhibition catalogue essay 2002: http://netartcommons.walkerart.org/ Access 1.12.2002

7 Peter Mattis and Spencer Gimball *GIMP*: http://www.gimp.org

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

9 *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 eight 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/

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

11 IRCAM (L'Institut de Recherche et Coordination Acoustique/Musique), founded in 1973 by Pierre Boulez in the basement of the Beaubourg: www.ircam.fr Access 1.1.03

12 Lalila – Katherine Gadd and Etienne Deleflie: http://www.lalila.net/ Access 1.1.03

13 www.radioqualia.net/ Access 1.2.2003

14 Virtual Artists are based in Adelaide – Jesse Reynolds et al http://www.va.com.au Access 5.2.2003

15 Having observed the way in which the open source movement had begun to develop, Sun Microsystems decided to follow suit and release the source code for Java, thus establishing that subtle distinction between community good and corporate profits

16 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

17 MIT *Free/Open Source Software Research Project* http://freesoftware.mit.edu

18 Professor Martin Vermeer is a research professor at the Finnish Geodetic Institute. From an article 'Linux and Ethnodiversity' originally on http://linuxtoday.com/