Death and the Internet
Yorick Wilks

"Things as certain as death and taxes can be more firmly believed"
Defoe, 1726

Someone who should know said "The Internet changes everything"
(Gates link) but surely not death which, like taxes, tends to be
permanent and unchanging? Yet civilizations differ in nothing
more than how they treat death and its subsequent state, if any.
Even within this society our treatment of death, and our reactions
to it, are utterly different from those of our Victorian ancestors
with their crepe bands, black-rimmed newspapers and mourning
hats; they now seem more like a foreign tribe.

Shrines are normally for the dead, whether elaborate tombs or
small candles in the corner of Japanese living rooms, but Internet
shrines are different, and it is often hard to know if the owner of a
web page is alive or dead. I turned fifteen years ago to the URL of
Silvio Ceccato, an old acquaintance, and discovered that his
webpage was now a shrine to the "Father of Italian Cybernetics". I
had no idea he had become so celebrated, but what was hard to
discover was the answer to the question that had brought me there:
whether he was alive or dead. It is this crucial borderline, dead
versus alive, critical to common sense, physiology and the law,
that the Internet systematically fudges.

If, in the future, to be is to be in cyberspace, then an area ripe for
exploration might be email replies from the dead: postmortem
email answering, a technical matter now within reach, given the
advances in computer processing of natural language in recent
years, one with huge commercial implications. In this article, I will
look at some recent attempts to commemorate and exploit death on
the Internet; they are all pretty rudimentary and obvious so far, but

1

that will change quickly. Let us speculate for a moment where they might get to: email has already been subjected to a wide range of analysis techniques to understand its content, most notoriously by companies and national security agencies. Such analysis can also decide whether the email content is basically positive or negative, whether it is asking for something or announcing an event, and so on. These and many other kinds of email content can now be extracted by reasonably intelligent programs, and it would be a very small additional move to have them automatically replied to as well, a service that could continue without a living correspondent. That could keep someone in cyberspace, as it were, for a fixed period for a fee, just as medieval chantries would pray for your soul for so many years for an appropriate donation.

One's email could move seamlessly into an after-life mode: academics, for example, are used to accepting and declining invitations to lecture by email, and sending out their publications as attachments in the same way. It is perfectly straightforward to extend the standard Unix "Vacation program", which replies to your email by saying you are on holiday and when you are coming back, so as to say:

> *I am sorry I cannot take up your invitation to your party because I died on September 1st 2010. I would have loved to come and see you all again; thank you so much for asking me.*

Sending out a requested document electronically would be straightforward, as would the provision of bibliographic or autobiographical information using the standard search technologies known as Information Retrieval and Information Extraction (Gaizauskas and Wilks, 1998).

Another way of thinking about this whole matter could be termed *Death as a Revenue Stream*. Death is universal and of some

interest to everyone, but can it be made the basis for a successful internet enterprise? Many sites are already trying to give users some access to the dead, for their own family and friends, by helping a user to tell, in advance, the kind of life story he or she wants to leave for their survivors, as well as planning posthumous messages and replies. None of these are offering real access to the dead, of course, but are manipulating the earlier insight that, on the Internet no one is really sure if you are dead or not. Suppose you could still seem to be not only answering your email after death but suppose you could also seem to talk and discuss memories with your families with your own voice and face? Anyone who doubts the state of this technology now should look at (Emily link) from a Manchester company. The demand for this would be enormous, and the associated forms of advertising would be similarly huge.

Another internet development relevant to all this is Second Life (https://secondlife.com/), a virtual world where some eighteen million people have taken up a form of residence using avatars: artificial appearances or simulations of themselves who meet others, including the avatars of people not currently on line. Second Life has obvious resonances of "after-life" as well as "parallel life", which is what its creators intended. The expansion of Second Life is extraordinary: hundreds of thousands of "acres" have been sold, a space which is (virtually) expanding by 8% a month. The sales are in "Linden dollars" inside Second Life, but these can be bought and sold for real money elsewhere on the web, which has given its virtual economy aspects of a real one.

Artists are now releasing songs within Second Life which the buyer can get and play there, and most major universities have bought space. I once had a perfectly serious conversation trying to convince someone from the British Library—which sometimes doubts the quality of its "outreach' in a demotic age---that it could buy land in Second Life and at least erect a large hoarding on it, saying "LIBRARY HERE SOON".

But what has this to do with the Internet? Life as an avatar, after one's own death, would certainly be a form of life in a virtual world. Your avatar on the other side could continue to function and appear to meet people, talking as it had been programmed to, visiting places and living a full if rather thin second life. It would not be you, of course, and at best rather like how schoolmen saw the lives of angels, as all form but no substance.

Other more serious possibilities arise from putting every possible fact, memory and datum about our lives onto the Internet itself. A few years ago the British Library hosted a meeting on Memories for Life, a topic generated as a challenge for modern computing technology and funded as a university research network (www.memories-for-life.org). The core idea is that computer storage is now so large and cheap that it becomes feasible to envisage recording everything we say, hear, write, see, eat or meet in eighty years of life, along with all our medical readings, and store it all on the Internet in some moderately large space (known to the technically minded as 28 terabytes, according to an estimate by Alan Dix of Lancaster University). This is a huge amount of storage but, at the present rate of progress, will be quite cheap to buy within a year or two, and need be no bigger than a sugar lump.

The real problem is how we could possibly search all our memories and facts, even if we had them available; how could we begin to make sense of them, in the way a biographer makes sense of a subject's life by careful editing and selection?

The notion of all one's life being on the Internet may sound fanciful, but it is already plain that huge chunks of our lives will be stored there, not only the emails and the documents we write, but all our photographs and videos, which we are being encouraged to show to everyone in the world on sites like Facebook (facebook.com),Flikr (flikr.com) and YouTube (youtube.com). The

commercial drives behind this trend are strong and are behind all the offers by Microsoft, Google, Vodafone and others to give free storage space to the public for their life data; in return, the companies will get access to people's memories, tastes and records and will then know what they need to send adverts personally to them.

One may be sure that, sooner or later, most people will need assistance to manage this mass of data for their own lives; there is simply too much already to survey and arrange into some kind of final form, when they come to think about what our ancestors called "putting their affairs in order". One suggestion for providing this help is a computer *Companion*: a conversational agent that stays with one for a long period, appears to learn one's tastes and habits, helps with internet, but which all the time is helping to organize and select from all this personal material for its "owner". One can think of a Companion as best suited to the elderly, living alone and in need of company, needing to be reminded when to take pills and of soap opera plots if they have been forgotten. Such a Companion could be a mobile phone, or a computer screen, but possibly something like a warm furry pet or handbag that sits on one's lap and talks, and is light to carry about.

The Japanese have already gone some way in this direction: the BBC website carries (Primo Puel link) a story about an elderly Japanese lady, Akino, who has a commercial companion called Primo Puel whose spoken Japanese is little more than gibberish although Akino is reported as being comforted by it, liking to "hear it chatting away to itself in the other room". Akino added that she found more comfort in it than talking to her late husband's shrine in the corner. Readers may remember early Japanese toys without any language, like Tamagochi, which still aroused powerful emotions of care towards them in their owners.

Primo Puel had no real language—it gabbled away in nonsensical Japanese----but natural computer conversation has come a long way, even if it is not yet the moderate success of machine translation on the Internet, which can now give a reasonable workmanlike translation of any web page on demand. The Loebner competition website (www.loebner-competition,org) shows the year-by-year increase in conversational capacity of programs that take part in its annual competition. A major European initiative to build a computer Companion has made use of much stronger modern technology for designing computer conversations: it is called *Companions* and videos of its performance can be seen at (Companions link). I initiated this project at the University of Sheffield, where it ran for four years with fifteen EU and US partners, and further discussion of its ideas can be seen at (Wilks link).

It is said that the elderly in care homes spend much of their time shuffling through memories in the form of old photographs; soon these will be digital images, of course, and the EU Senior Companion starts, in the demonstrator linked above, by discussing who is in each picture, where it was taken and what its importance is. The idea here, which may or may not produce anything anyone wants, is to use conversation with the elderly to build up coherent narratives, stories of parts of an owner's life, the whole life story thatbthe images tell. Only those with talent, resources and leisure normally write autobiographies but, if the Companions project or its successors work, anyone could assemble some form of autobiography for their children and undergo, with the Companion's help, some form of debriefing of their entire life. Many learn little of the early life of their own parents but then, suddenly, it is too late to ask; but in its long interactions with its owner, a Companion might elicit a wealth of memories of a parent's early life.

Companions may seem a futuristic project, but the Japanese have shown there is a market for surprisingly primitive devices of this sort, if they reach an acceptable level of naturalness of voice and manner. The technical basis of the Companion is a research area called machine learning or what some call data mining: the ability of a computer to learn, within limits, things it did not know before. An obvious successful example is learning to understand or imitate a voice: the iPad now comes with voice recognition software that gives close to 100% transcription of voice to text, even with no prior training by the user, which had always been required until now to get good results.

The very same underlying process would allow a Companion to imitate its owner's voice: Stephen Hawking's insistence on keeping his twenty year-old electronic voice has had the effect of hiding the great advances that have been made, but on in-car Satnavs one can now chose from a wide range of completely plausible artificial voices with a variety of accents. The Companion, after years of debriefing the same owner's life, would also, even with today's technology, produce a reasonable approximation to their voice. It would have access a huge and organised world of images, emails and documents telling its owner's life story, so it is not too hard to imagine a Companion continuing after its owner's death to answer question on their life and in their own voice. Would we want to be able to ask out father's Companion "Where were you on holiday in 1965, was it Pisa or Venice?" No one yet knows the answer, and it is just one of the possibilities of what to do with a Companion after its owner has died.

Some might prefer to destroy the Companion of a loved one at that point, as some used to put down a parent's dogs and others, like the ancient Egyptians, killed the wives of rulers at their deaths. Few of us now would support that, and might well opt to keep the

Companion, with its familiar voice, its memories and detailed knowledge of the loved one, as a powerful and moving memorial. That would not be a very red-blooded form of life after death on the Internet, but it is something many might find attractive in the future, for themselves, their parents and for their own children. It is no more, perhaps, that a computerised and updated form of the goodbye videos from the deceased now shown at their funerals, and on some modern gravestones, known in America as Vidstones, which have, instead of a simple memorial picture built into the stone in a way long familiar in Italy, there is a small video of the deceased, solar-powered, that can be activated by a switch. Or, in a more literary vein, it is not far from the pre-war view of Jules Romains in his novel *La mort de quelqu'un*, that one had some form of existence only so long as one was remembered by someone alive and no longer; it is a view not far from much modern rational common-sense.

Ray Kurzweil, the computer pioneer who built the first dictation-typewriter, is said to be devoting his old age entirely to health products so that he can stay alive long enough to benefit from what he believes will be the next great technical advance: the reproduction of every human brain cell in a computer, or *in silico,* as he puts it. A Companion that simulated a dead person would be much less radical than that: it might imitate behaviour but would have no tie to any structure in the departed's body or brain. But even Kurtzweil's surviving *in silico* twin will not be himself, and would deliver him no more of the traditional afterlife promise than would the survival of his identical twin brother.

The "dark web": existing death sites on the Internet

The "dark web" is a phrase used for the hidden web that search engines do not find, either because it is hard, or being kept secret, often by warning off search "robots" not to go there; it is thought to be enormous, far larger than what Google searches. I mean

"dark web" here in another sense: the ways in which the Internet and the web are adapting to and encompassing death while seeking revenue streams there, for the web will only go, in the end, where profit is to be found. I think this dark web is also larger than people realise; just as one day there will be more dead internet users than living ones—a thought we rarely entertain, but one which will have great consequences for information about human lives.

USA Today carried a headline "Death leaves online lives in Limbo" (16 March 09) to introduce Facebook's change of policy regarding dead network members. The social network site moved from deleting such accounts to "freezing" them and allowing tributes to the dead continue to be placed on the site, though it is now (August 2010) having to rethink this policy because of the amount of malicious material being added to such sites. There have been problems as to how Facebook itself, or the friends of the deceased, could know a person really was dead, as opposed to being the subject of an unpleasant joke, as well as complaints (Prospect link) that the dead one still seemed to be inviting people to join them in various activities, The "freezing" process did not appear to prune all the links that made it seem as if the person was still alive, which was claimed to distress some users. The memorial web site notion is not a side-effect of Facebook, of course: such sites have been there since the web began, as I noted earlier for the Italian cyberneticist Ceccato.

There are now four major types of death site on the Internet worth distinguishing:

1) Memorial and tribute sites created for the already dead;
2) "Locked boxes" of assets and secrets for survivors that protect the individual's interests after death;
3) "Legacy" sites containing last wishes and emails to be revealed or sent after an individual creator's death.

4) "Life story" sites that manage autobiographical material for an individual creator so as to leave some form of self-presentation of their life.

1. Memorial and tribute sites for others.

These were started, at least in the UK, as the Virtual Memorial Garden (VMG link) in the mid-90s; it was a low-tech site, free and set up by an academic. As the site describes itself:
"The VMG, is not a place of death, but somewhere people can celebrate their family, friends and pets; to tell the rest of us about them and why they were special."

There is now a substantial number of such sites: and not all the selection listed below are still active:

http://letterfrombeyond.com
http://www.deathsrecords.com/
http://www.nationalobituaryarchive.com/Obituary/
http://mydeathspace.com/
http://gonetoosoon.org
http://www.lastingtribute.co.uk
http://www.tributetimes.co.uk
http://www.legacy.com
http://www.last-memories.com/
http://www.friendsatrest.com

This is a very mixed bag of websites: they vary in aesthetic quality and their sense of being up-to-date. Some seem neglected, but one claims over twenty-two thousand users users. They are all some combination of obituary, usually for another, together with material one might want loved ones to see, both words and pictures. Virtually all are free initially; some provide extras like bereavement advice, family tree links, sales of candles both real

and virtual, provision for pets to be remembered as well as people, funeral related adverts, remembrance days to be observed into the future, special days for soldiers killed, featured obituaries of the day, counselling on "handling grief" and many contain recent obituaries of the famous. The last can be a simple measure of how well-tended a site is: the recency of its famous deaths—and many are populated almost entirely by celebrities, rather than their natural customers in the population. Two of the above sites (deathrecords and nationalobituaryarchive) are essentially pointers into public records of recorded deaths in English-speaking countries and, although private, are more like public resource sites for those interested in genealogy.

This first category crosses our types of site above, since some of these sites also allow self-memorialization and leaving images and words for one's own relatives and friends, rather than being concerned exclusively with the memorialization of others, and the creation of shrines to them, all of which is what we might call, in shorthand, the Facebook issue. Many of the above sites link directly to Facebook and its competitors, where they take the form of closed groups which you apply to join so as to protect the tributes from vandalism, though it is unclear how effective Facebook's current method is. Several sites promise "permanence" though it is hard to see how they can give that, especially as some have already gone out of business, and direct transfer to Facebook might well seem a better hedge against fortune

2. Deathswitches

Our second category is that of sites that claim to protect assets and secrets for those who die, expectedly or not. A *Guardian* article about them (30.9.09) was headlined "Preparing for digital afterlife" and asks "How should we deal with web users' Facebook, Paypal and other accounts when they log off for good?", but the burden of the article is not Facebook but Paypal, and is about those locked-in

web assets which can be harder for survivors to get at than the contents of their relatives' bank accounts.

An early entrant into this area of web survival was http://www.deathswitch.com/

which has now given its name to the whole genre. The site warns sternly: "don't die with your passwords in your head", and also offers eccentric benefits such as having "the last words in an argument" and the posthumous revelation of one's "unspeakable secrets". But much of its preoccupation is with insurance information and the secure transfer of assets after death, over and above standard and long-tested mechanisms like wills. Here the emphasis is on things someone may want done very fast after they die, which gives a slight impression of shadiness. Perhaps the oddest aspect of the site is its "trigger mechanism": this is the key item on a death site---to trigger recognition of the client's death so that the long-prepared mechanisms can go into action. We shall discuss this further below, but this site has the oddest method of all: the client has to email the site at regular intervals, possibly every week, to assure it he or she is still alive. If the message is not received, the site assumes they are dead and goes into action. One can imagine all kinds of reasons, from forgetfulness to failed mail, why a message might not get through on any one week, but with awful consequences. One thinks here of crying wolf and how one's death notice would not be taken seriously after a few premature announcements.

The site's philosophy comes out in: "Memories now live on their own, and no one forgets them or grows tired of telling them. We are quite satisfied with this arrangement, because reminiscing about our glory days of existence is perhaps all that would have happened in an afterlife anyway". There is a novel theology buried in there somewhere, and again there is not a firm distinction

between deathswitch sites that trigger asset-related actions and the self-assembly of memories.

Other sites in this genre include:

Youdeparted.com is another such site, now renamed Assetlock.com. It allows the storage of details of taxes, insurances, passwords, your will etc. DataInherit.com says it is "is the leading Internet datasafe with data inheritance; Corporate and personal data on a commercially valuable scale---continuity of company knowledge". Legacylocker.com Claims to look after assets posthumously; it offers financial planning and claims more than 1500 customers which, at $300 each, gives it revenue of half a million dollars already.

Some attention has been given to more obscure forms of asset protection: Lilian Edwards of the University of Sheffield discusses the ownership of World of Warcraft credits on Youtube (Edwards link) and there are lively blog discussions (e.g. on AskReddit) about what happens to one's internet porn after death and which list services that offer to rush in on news of one's death and clean up one's hard disk.

3. Last message sites

These are sites that allow the sending of pre-stored "final emails" or "words and pictures to be sent to loved ones" as letterfrombeyond.com puts it. Again, there is not a firm dividing line and some of these sites also allow books of condolence and the writing of your own obituary. Other sites of this type include:
http://www.mylastemail.com/
http://FinalThoughts.com
http://Slightlymorbid.com

FinalThoughts has now disappeared in its original form and has become an "entertainment resource". The last two both had sensible mechanisms for alerting the system that the client was dead: they use the conventional model of an executor of a will, someone who will know of the death of the client and who will then know what to do, having been alerted in advance, along the lines of the immortal device "only open this if something happens to me". Executors are usually named in pairs, for obvious reasons, given the uncertainty of things. That person is called a "Guardian Angel" by FinalThoughts and a "trusted representative" by SlightlyMorbid.

Problems with these sites

All death sites need some "trigger" which sets off whatever has been planned in advance. In real life it is the registration of a death with a public authority but, in cyberspace, which is essentially private and personal, the issue is far less clear. As we saw in the opening Facebook story, a key problem setting it all off was whether or not the person really was dead, as opposed to not communicating, shamming or hiding. As one netizen once wrote of another "If I don't hear from him every half hour I assume he's dead", but this is normally thought excessive. As we saw, some very like that was the basis of one of the deathswitches we described, where the company/site asks a client at regular intervals if they are alive or not, and expects them to mail in saying they are. Other sites adopt something much closer to a conventional executor, who will know someone is dead and be primed to act accordingly. This is the traditional method tried throughout human history, but one wonders whether something new could be created for the Internet between these two extremes of the traditional and the excessive?

If some form of medical prostheses become standard for the old, it may be possible to create a third possibility. A range of "medical jackets" are being designed that constantly monitor blood pressure and other major bodily functions and alert appropriate professionals when necessary, or advise the wearer to do something, such as take a prescribed pill. Similar systems will no doubt become standard for the young, not so much to monitor their functions as to say where they are and who they are talking to: are they chatting or studying? The prospect could be depressing, and what might be tolerated for a criminal on probation, say, would be oppressive for a child. In the case of the elderly the benefits might outweigh the losses, and such monitors could as easily determine loss of all bodily function as what they are now being planned to do: they are in constant contact with public authorities through the internet and could equally well alert registrars and trigger private deathswitch arrangements.

Another factor that divides sites is whether or not they seek a revenue stream: some are essentially charitable. Although nearly all the sites mentioned offer initial free services, with charges coming only later, gonetoosoon relies on donations, as did the original Virtual Memorial Garden.

One extraordinary diversion has been the recent growth of "suicide sites": these refer not to real suicide but to people committing intra-web suicide—removing themselves voluntarily from social networking sites and so, in a sense, ceasing to exist. The two main sites are

www.suicidemachine.org
www.seppukoo.com

The first is a Dutch site with a witty video advertisement linked within a Los Angeles Times story (LATimes link). As the film puts it "my internet life is dying but my real life is starting" as it advises

you to "Sign off for ever". At these sites one can simply list the social networking sites one wishes to be removed from and watch as one's site membership is cancelled. Seppukoo (the Japanese for ritual suicide) gives special publicity to those who have persuaded the most friends to leave social networks.

The paradox here is that this process creates a new network of those who have left (conventional) social networks, which raises the suspicion that this could all the a ploy to move people from established networks to competing anti-networks. Facebook has reacted very badly to those developments and the LA Times story carried details of the injunctions Facebook has taken out, not yet with complete success, in an effort to stop this "rejectionist" movement.

A recurrent issue on the memorial site web pages is that of the permanence of the tribute information they contain. Several sites promise this but give few details as to how it is to be achieved. The long-term survivability of digital information is a problem for all forms of information (see e.g. Ross 2002) but is particularly acute for information about the dead who are no longer able to safeguard their own information and move it from medium to medium as most people learn to do. There is an obvious analogy here with the history of cryogenics, where some pay small fortunes to have their bodies (or sometimes just their heads) frozen in liquid nitrogen, awaiting revival after medical advances. When such companies go bankrupt masses of bodies and parts are simply thawed and disposed of.

Permanence in memorials is hard to achieve short of building pyramids: the best bet for future repositories of digital memorials will be to make them part of some national memory project, or at least a project stored and curated by an institution liable to survive for a very long tims, such as a university, a church or a national library. The British Library has a "British Lives" project (British

16

Library link), but this is not yet available for the records of the kinds of companied we have been describing here.

A new kind of deathsite, only present in simple form in those now available, would be one where a person attempts to organise and make sense of their digital holdings over a whole life time, so as to select and organise a presentation of themselves they wish to be remembered by, or possibly leave several such assemblages for different groups (family, business colleagues etc.). We suggested earlier that this might some kind of "autobiographical manager", what I earlier called a Companion, because people have yet to come to terms with the sheer quantity of digital information a whole life of over eighty years will amass: their documents, email, blogs, videos, images and so on.

The Life Companion agent is a technical development that is now quite possible and we shall surely begin to see devices like this in the coming years. We imagined it going further and, after a client's death, assuming the voice and physical screen form of its own so it could be talked to by survivors and asked questions. Some may find this an unacceptable form of immortality, but it now seems inevitable that in the future the dead will speak, and it is worth considering now what form that will take and how acceptable it will be: the audio, avatar and conversational technologies are almost in place. Some companies are trying to jump the gun with early versions of self-avatars (e.g. lifenaut.com) but these are still too crude to be acceptable to many.

A major question will be how to present the "whole digital life"— it could be as orthodox as an autobiography of texts and images arranges in linear order, but may well be something much more creative: possibly a whole exploitable space of audio and video records linked to familiar objects from a life (like jewellery, a pipe or a piece of clothing) or to a Google mashup tying images and audio to locations on a map where events actually happened in life,

and where holidays were taken, or even a cleverly structured moving time line of a lifespan, or all of these at once.

What will be vital will be that the person designing their own memorial remains in charge of their data while they live, and that the major companies now arm-wrestling for our life information on the Internet do not manage to take if from us when we are gone, as more and more life data becomes that of the deceased. The social correlations implicit in all that data about the dead will be no less valuable to companies selling to the still living and buying population. It is impossible to know how this trend will develop, but we may be set, with the decline of religious belief, for the rise of a neo-Victorian social death cult, one where death is denied and the dead are celebrated in cyberspace as if they were still with us, talking and answering the questions we never got a chance to ask before.

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(British Library)
((http://www.telegraph.co.uk/connected/main.jhtml?view=DETAILS&grid=&xml=/connected/2006/12/13/nlife13.xml)

(Companions)
http://www.youtube.com/watch?v=-Xx5hgjD-Mw

(Edwards)
http://www.youtube.com/watch?v=6B139TeeAOk

(Emily)
http://www.youtube.com/watch?v=UYgLFt5wfP4&feature=player_embedded

(Gates---attributed by the Financial Times 2000)
http://specials.ft.com/ln/ftsurveys/q4f9a.htm

(LA Times)
http://latimesblogs.latimes.com/technology/2010/01/facebook-fights-back-disallows-the-suicide-machine.html

 (Primo Puel)

http://news.bbc.co.uk/2/hi/programmes/this_world/golden_years/4436633.stm

(Prospect Blog: Pete Langman)
http://www.prospectmagazine.co.uk/2010/05/what-has-facebook-done-to-our-relationship-with-death/

(VMG)
http://catless.ncl.ac.uk/vmg/

(Wilks)
http://webcast.oii.ox.ac.uk/?view=Webcast&ID=20100712_326

Yorick Wilks is a Senior Research Fellow at the Oxford Internet Institute and a Senior Research Scientist at the Florida Institute of Human and Machine Cognition.