Journal of Posthumanism
Summer 2024
Volume: 4, No: 2, pp. 159–167
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
journals.tplondon.com/jp

TRANSNATIONAL PRESS® LONDON

Received: 18 May 2024 Accepted: 8 June 2024
DOI: https://doi.org/10.33182/joph.v4i2.3344

The Digital Hereafter, or: Nirvana in the Cloud

Dirk Vanderbeke[1]

Abstract

In the discussion of posthuman encounters, the focus is predominantly on robotics and the cyborg, artificial intelligence, and the implementation of technological elements into the human body. Less often explored is the complementary vision of the uploaded mind as a promise of life extension or even immortality. Nevertheless, there is, by now, quite a body of conceptual explorations, promises, warnings and also popularizations of this idea. The technological options described range from memory transfer to whole brain emulation or simulation, and they raise a multitude of theoretical, technological, philosophical and ethical concerns. Unsurprisingly, the assessment varies from enthusiastic celebration to dystopian nightmares, and the concepts have also been explored controversially in literary works. In my paper I outline the most important arguments and discuss some works of science fiction which explore visions of uploaded minds, most importantly Greg Evans's Permutation City, Amitav Ghosh's The Calcutta Chromosome, and Jeanette Winterson's Frankissstein.

Keywords: *Uploading minds; Brain scan; Digital immortality*

Introduction

At the very end of the TV series *Years and Years* from 2019 (episode 6, 45:10-end), Edith Lyons, a political activist, suffers from the effects of the radiation she was exposed to when, in a fictional scenario, Donald Trump launched a nuclear strike on Vietnam. Now she is about to die, but just prior to her death she agrees to have her mind uploaded to a water molecule-based computer. In the final scene, the family gathers around a future version of Siri or Alexa and hopes for Edith to make contact. It is, of course, one of those instances in which empathy with the fictional figure helps to sell a questionable and controversial technology to the audience. The alternative perspective can be found in the series *Upload*, in which various problems of the futuristic promise are explored, ranging from all kinds of glitches to the question of ownership and thus dependencies.

There is something peculiar about this topic – the scientific, philosophical and literary explorations feel as if they were written almost simultaneously, while, in fact, they were published over almost three decades – for example, Jeanette Winterson's *Frankissstein* was written in 2019, Michael Graziano's "Why You Should Believe in the Digital Afterlife" in 2016. The most important *Black Mirror* episodes on this topic – "White Bear", "White Christmas", and "San Junipero" – were screened in 2012, 2014, and 2016 respectively. Patrick Hopkins' "Why uploading will not work, or, the ghosts haunting transhumanism" was published in 2012, the relevant texts by Ray Kurzweil in 2000 and 2005, and the most comprehensive novel I have yet come across, Greg Egan's *Permutation City*, in 1994, that is before the internet had really taken off. It seems as if the arguments and

[1] Dirk Vanderbeke, Friedrich-Schiller-Universität Jena, Germany. Email: dirk.vanderbeke@uni-jena.de

responses, the promises and warnings, have not really changed over time and still rework the same technological, philosophical and ethical questions and concerns.

The first one to suggest such a process seems to have been George M. Martin, a pathologist who imagined the future possibility to access the information of cryobiologically preserved brains and wrote in 1971:

> We shall assume that developments in neurobiology, bioengineering, and related disciplines, perhaps over a period of centuries, will ultimately provide suitable techniques of "read-out" of the stored information from cryobiologically preserved brains into nth generation computers capable of vastly outdoing the dynamic patterning of operation of our cerebral neurons. We would then join a family of humanoid "postsomatic" bioelectrical hybrids, capable of contributing to cultural evolution at rates far exceeding anything now imaginable (Martin, 339-340).

The idea of prolonging life, possibly even interminably, by the preservation of the brain after the death of the body has, of course, been discussed even earlier – and some unpleasant possible consequences have been described in Roald Dahl's delightfully sadistic story "William and Mary". A similar scenario was employed by Laxman Londhe in "Einstein the Second" in which the brain of a brilliant scientist is preserved against his will after his death and forced to continue the completion of a unified theory. As in "William and Mary", the preserved brain is at the mercy of its 'guardian', and in Londhe's story, this transgressive scientist suggests stimulating the pain or pleasure centres in the brain to overcome possible resistance against the treatment and the forced work.

The concept of the uploaded mind shares some of the promises and problems of the preserved brain, but now the mental apparatus will no longer be kept alive but digitally copied with all its necessary components, and the processes can then be simulated by the computer. Different procedures have been suggested and two methods of transfer are usually proposed, one invasive, the other non-invasive (see Kurzweil, 2000). The first method is an extremely detailed brain scan, i.e., the brain is frozen just before its death and then sliced very thinly so that each minuscule element down to the neurotransmitters and synapses can be scanned and digitally copied. Whether even such a detailed scan would be sufficient is, of course, highly questionable, but there is no doubt that the technologies will be improved over time, and future scans could be increasingly accurate. The second, non-invasive option employs billions of nanobots to swarm the brain and body to gather all the necessary information for an exact digital replica. Thus, both methods rely on scans – in contrast to clones, for example – as the basis for the replication of the brain. In 2005 Kurzweil wrote:

> Uploading a human brain means scanning all of its salient details and then reinstantiating those details into a suitably powerful computational substrate. This process would capture a person's entire personality, memory, skills, and history (Kurzweil 2005, 199).

Of course, the question remains whether such a scan, invasive or non-invasive, could reach the relevant levels of our brains – not just the transmitters and synapses but also the functional features of the respective cells and the molecular structures which may be crucial for the simulation of the working brain. It seems as if the visions of the uploaded mind are based in the idea that an exact replica of the hardware, the physiology of the brain, will automatically also include a working version of the software, i.e., the processes, messages, interactions, and, in addition, the mental capacities, memories, language, talents, and acquired knowledge. This, however, is far from certain; after all, it

is still unknown where and how memories are stored in the brain, how they are accessed and processed, and how they interact with the stimuli that reach the brain as neural representations of our experiences.

In addition, the easy identification of the mind with identity is questionable. The mind/body-dichotomy has been debated for centuries, and concepts of an embodied mind have over the last decades been strengthened by neurology, psychology, and cognitive studies (e.g., Damasio, 87-89). This has not been ignored by the proponents of mind uploading; Kurzweil admits that thought and personality do not just reside in the brain and that the uploaded mind would require an adequately simulated body, but then he suggests that the "human body version 2.0 will include virtual bodies in completely realistic virtual environments, nanotechnology-based physical bodies, and more" (Kurzweil 2005, 199). Once more the question arises whether the replication in a different medium and with a different substance can precisely equal the original properties and functions.

Even more importantly, the suggestion of an exact duplication fails to address the problem of identity. Patrick D. Hopkins has drawn attention to the use of metaphors in the research and in the texts promoting future mind uploads, and both the phrases 'mind transfer' and 'mind upload' indicate that in addition to the creation of an exact, but also fundamentally different copy, there is, indeed, something that is moved from one location to another.

> Ironically, uploading enthusiasts by and large seem to be relying on a dualist theory of mind (which they normally explicitly reject) informed by religious metaphysics and beliefs in transmigratory souls and displaceable ghosts. The mind is being treated just like a soul (Hopkins, 232).

This vision, of course, underlies the final scenes of *Years and Years*, and the transfer is indicated by multiple tubes running from Edith's head to the water tanks which are supposed to duplicate, and offer a home to her mind and personality, her essence.

Such a transfer is also at the root of the moment of closure in Amitav Ghosh's *The Calcutta Chromosome*. In this novel, Western science is matched and even surpassed by a secret Indian science which seems to literalize the transmigration of souls. At first, the practice works by making use of malaria viruses which, in the novel, can copy and paste their DNA and thus "make some tiny rewirings in the host's wetware" (Ghosh, 251).

On the last page of the novel, however, the protagonist links up with his supercomputer via a Simultaneous Visualization headgear and suddenly encounters various of the other characters who are now inside the machine:

> There were voices everywhere now, in his room, in his head, in his ears, it was as though a crowd of people were in the room with him. They were saying: 'We're with you; you're not alone; we'll help you across' (Ghosh, 308).

The mystical transmigration of the soul is first replaced by a biological process and then by an unspecified form of digitalization, but while the religious belief assumes that there exists a soul that passes from one body to another, both of the fictional methods rely on alternative essences that are transferred – bits of DNA, or something that is "helped across". But whatever it is, it is the embodiment of the personality with all its memories and mental faculties.

The promise of immortality relies on such a process, otherwise a machine would merely perform processes similar to those of the uploaded mind. The simulated mind would be merely a copy,

indistinguishable from the original but ineradicably different. And while the artificial brain could possibly be able to simulate the processes of the living mind, the person in question would still be dead.

> If the specific mind that is "in" or produced by a brain is not the very same specific mind that is "in" or produced by the computer, then immortality has not been achieved, a person's life has not been saved, and uploading fails to satisfy its original promise (Hopkins, 233).

In the words of Michael Graziano: "Did you cheat death, or merely replace yourself with a creepy copy?" (2016).

In Jeanette Winterson's *Frankissstein*, the problem of survival is addressed by Victor, a proponent of transhumanism:

> [W]hat I would prefer is to be able to upload myself, that is, upload my consciousness, to a substrate not made of meat. At present, though, that is not an effective way to prolong life because the operation to scan and copy the contents of my brain will kill me (Winterson, 110).

But later he shifts the argument, suggesting that it is not the material brain that makes the person but the processes, not the physiological form, but the information it contains: "Think of yourself as data, Ron. Your data can be stored in many containers. At present it is stored in a large meat-safe" (Winterson, 265-266).

But then, the most pertinent question is not how we think of ourselves – whether we see us as data or patterns or processes – but what we, actually, are, and that question is far from being resolved.

In any of these technological models and visions, time is of crucial importance. In the invasive scenario, it is relevant when exactly death takes place. Has the uploaded mind died, and is the process a simulation or a resurrection? Even more problematic is the non-invasive scan, because a transfer cannot have taken place, as the original person still exists. Thus, the mind and its copy have been separated, and therefore a) death still ends the life of the biological being, and b) the new copy will necessarily develop independently from the original – the copy will face different experiences and influences that shape the identity and personality. This aspect is drastically described at the beginning of Greg Egan's *Permutation City*. The story begins with the copy of one of the protagonists, Paul Durham, gaining consciousness in its new digital environment. It takes a while until he realizes that he is, indeed, a copy, but once he does, he is not happy about it. Obviously, this is not the first time a copy of the original Paul has been created; this is number four, but his predecessors are no longer around:

> [N]one of them had volunteered much useful data at all. They'd just ranted abuse, whined about their plight, and then terminated themselves – all within fifteen (subjective) minutes of gaining consciousness (Egan, 3).

Indeed, when in the fictional world the first copy ever was created by a neurosurgeon, its first words in its new environment were: "This is like being buried alive. I've changed my mind. Get me out of here." (Egan, 47). After two decades, this is still a common response to being uploaded.

> People reacted badly to waking up as Copies. […] Ninety-eight percent of Copies made were of the very old, and the terminally ill. People for whom it was the last resort – most

> of whom had spent millions beforehand, exhausting all the traditional medical options; some of whom had even died between the taking of the scan and the time the Copy itself was run. Despite this, fifteen percent decided on awakening – usually in a matter of hours – that they couldn't face living this way.
>
> And of those who were young and healthy, those who were merely curious, those who knew they had a perfectly viable, living, breathing body outside?
>
> The bale-out rate so far had been one hundred percent (Egan, 5-6).

This is also the response chosen by Paul, but he has been tricked – the bale-out option has been removed from his program, and so he rants at his predecessors and also curses his original who has left him no exit door. Undoubtedly, they are no longer the same person.

Michael Graziano proposed a Y-model for such a process, i.e., the person and the copy have a common past which at one instance splits; after that crucial moment they move on separate tracks, and, in consequence, there are two identities – one of which is still doomed to die while the other may possibly gain immortality.

But time also enters the picture on a quite different level. Brain processes take time, so does computer processing, and accurate synchronisation may present a serious problem. At the beginning of *Permutation City*, computers are not yet able to keep up the speed of the biological processes, and the copies run seventeen times slower than the outside world. In consequence, every contact with external reality is hopelessly out of synch, and a robot endowed with an uploaded mind would just be "blundering around in a daze, trying to make sense of the lightning-fast blur of human activity" (Egan, 4). Unless improved technology manages to catch up with real life processes, the discrepancy has a dampening effect on previous friends and relatives.

> Copies could only receive realistic external visitors if they had friends or relatives willing to slow down their mental processes by a factor of seventeen. Most dutiful next-of-kin preferred to exchange video recordings. Who wanted to spend an afternoon with great-grandfather, when it burnt up half a week of your life? (Egan, 12).

With ever improving technologies, the time lag could certainly be overcome and even reversed. In *Frankissstein,* Victor suggests that:

> If we were to succeed at brain emulation […] the uploaded brain could run at different operating speeds – much faster than ours, or much slower, depending on the task to be completed (Winterson, 277).

This promise, however, could have some dire and truly scary consequences and side effects. In "White Christmas", the 2014 Christmas special of *Black Mirror*, a convicted murderer has been uploaded into a digital cookie, and he is punished by having to listen endlessly to the song "I Wish It Could Be Christmas Everyday" that played while he committed his crime. Before leaving for Christmas vacation, the sadistic officer in charge sets the convict's experience time to 1000 years per minute – a terrifying secular version of Purgatory lasting the subjective time of several million years.

In *Permutation City*, Paul Durham's hope for technological improvement, however, also touches upon a far more serious concern, and an increasing difference between the various subsequent versions of minds from first to nth generation is certainly to be expected. In this context the biblical

dictum that the first will be last will inevitably come true, and the pioneers who upload their minds immediately once the technology becomes available are eventually bound to be at the lowest end of digital sophistication and functionality. Later versions will solve the bugs that are to be expected in the first experimental scanning programmes, resolution and computing power will increase and with it the accuracy of the simulated mental activities. In consequence, older copies will probably not be able to process information as well as the improved scans, and with permanently updated hard- and-software this gap could widen indefinitely and, humans being what they are, result in power structures and hierarchies.

Ray Kurzweil addresses this inevitable problem, but suggests that it can be overcome:

> If you've ever tried to retrieve information from an obsolete form of data storage in an old, obscure format (for example, a reel of magnetic tape from a 1970 minicomputer), you understand the challenges in keeping software viable. However, if we are diligent in maintaining our mind file, making frequent backups, and porting to current formats and mediums, a form of immortality can be attained, at least for software-based humans. (Kurzweil 2005, 325)

Permutation City already expressed some doubt about a harmonious and egalitarian hereafter. In the novel, the most important differences are those between the immensely wealthy founders of the digital world and the ordinary copies who were also rich in their lifetime but are no longer part of the elite in the digital afterlife. The founders command enough financial resources and computing power to be relatively safe, and they are also able to create sufficiently pleasant environments, while the lesser copies are, at least for the early times of uploading, living in the digital equivalent of slums.

I just mentioned the safety of the copies, which is, of course, of crucial significance on various levels. In *Permutation City*, the question of legal rights of the copies has not been resolved, and while the super-rich are able to wield some power in the real world by the financial resources they still control, their status as legal persons has not been ratified. They cannot vote or take legal action, and thus they are dependent on external support for the maintenance and continuance of their digital lives. And as one character points out: "The privileged class of Copies will grow larger, more powerful – and more threatening to the vast majority of people, who still won't be able to join them" (Egan, 42).

But even significantly lower costs and a wider accessibility of the technology would not necessarily change the attitude towards digital citizenship. In the novel, one of the super-rich copies argues that legal rights will be granted to uploaded minds within a relatively short time, because the process would become easier and cheaper and thus available to almost everyone. Yet the very consequences of mass-digitalization could be detrimental to this expectation. With a growing number of humans uploading their minds, the digital copies from the past would quickly outnumber the biological humans of the present and, if granted legal rights, take over government and rule according to their own interests. It is hard to imagine that the 'real' humans would hand over power to the digital minds and agree to be governed by their forefathers.

Moreover, it would be difficult to grant copies legal rights as citizens for the simple reason that they are copies and thus not necessarily unique persons. The Y-model suggested by Graziano is not restricted to the original and one copy only, and the technology would allow for multiple branchings and the creation of a host of copies, each developing along their own lines of new experiences and formative influences. Voting rights for digital minds would allow the wealthy to flood the electorate

with copies of themselves – possibly even copies that would be deleted again once the election is over.

In *Frankisstein,* Ry, a transgender analogue of Mary Shelley, muses about the possibilities of multiple selves:

> I could be me and me too. If I could make copies of myself – upload my mind and 3D-print my body, then one Ry could be in Graceland, another Ry at the shrine of Martin Luther King, a third Ry busking the Blues in Beale Street. Later, all my selves could meet, share the day, and reassemble into the original self I like to believe is me (Winterson, 30).

The vision of a reassembly of the different selves with different experiences into one single coherent self would, however, lead to some serious psychological complications increasing with the time span involved – a divided psyche or split personality is, after all, a serious mental condition, and it probably won't be advantageous to create it artificially for the fun of multiple experiences. In *Permutation City*, the involuntary copy of Paul Durham is exploited for experiments by his original and has to recognize that "The two of them were irreversibly different people now, with different problems and different goals – and the stupidest thing he could do would be to forget that" (Egan, 89).

The most significant problem, however, is the materiality of the digital world. The metaphors employed in the descriptions and promises, and the futuristic images that illustrate the texts and guide our visualization of the uploading process all seem to suggest an immateriality; the graphic designs on dedicated internet websites frequently show a mystically glowing insubstantiality.

But these linguistic and visual representations of the uploaded mind mask the most obvious material foundations of each and every digital process: It needs a location, even if this location might be distributed and come under the name of 'cloud'. As such, it requires maintenance and a constant supply with energy. *Permutation* City already addresses such problems: Computing power is paid for by the hour, and one of the characters points out that storage, maintenance, and the permanent energy supply may prove to be expensive. In consequence, uploads may have to compete with other demands on the resources. In the novel, the competition comes from new research in weather control to ward off droughts in sub-Saharan countries and thus prevent the death of vast numbers of biological humans. It seems to be possible to employ the Butterfly Effect, i.e., to determine and implement a minuscule change that will lead to a major effect, but that requires enormous processing power, and one of the characters involved in selling copy safety points this out:

> 'There's a limited supply of computing power right now, isn't there? Of course it will grow – but the demand, from Copies, and for weather control, is almost certain to grow faster. Long before we get to your deathless Utopia, we'll hit a bottle-neck – and I believe that will bring on a time when Copies are declared illegal. Worldwide. If they've been granted human rights, those rights will be taken away. Trusts and foundations will have their assets confiscated. Supercomputers will be heavily policed. Scanners – and scan files – will be destroyed' (Egan, 43).

And indeed, Operation Butterfly does at times buy all the computing power available, and the copies are flatlined for the duration of this intervention (Egan, 81). But even without such conflicting demands, the concept of immortality clashes with the material conditions within a dynamic history. Is it possible to expect that humanity survives and lasts for eternity? Will this humanity be indefinitely interested in the preservation of uncountable uploaded minds from an increasingly

receding past? Will the rapid technological developments forever accommodate ancient forms of storage and processing – and will sufficient resources be granted for countless updates and reformatting?

The more optimistic protagonists of *Permutation City* and the real-world technological visionaries seem to assume that the necessary financial funds can be supplied by the continuous accumulation of wealth from investments or trust funds after the mind has been uploaded. But will our monetary system and the financial markets, a.k.a. capitalism, flourish forever? It has famously become "easier to imagine the end of the world than to imagine the end of capitalism" (Jameson, n.p.), but in this case, either would put an end to immortality. Future generations may not look favourably on the generations which wilfully and in the face of better knowledge ruined the earth, and they may be unwilling to sacrifice even more energy for the perpetual preservation of the previously most powerful and thus responsible minds. But then even comparatively minor events could end the eternal life of the copies, e.g., an unfortunate power shortage, a hacker attack on the respective facilities, a nasty virus infiltrating the computer system. All claims that future IT security could prevent such calamities remain unconvincing in the face of the vulnerability of digital systems and the increasingly dangerous attacks on the internet architecture of the present. One of the 'immortals' of *Permutation City* admits that a meteor or a revolution could lead to the destruction of the computers or the files, or that a plague could kill the whole human population while the copies are left untouched – he strangely seems to assume that the digital minds could still survive even if humanity does not (Egan, 43-44).

But then, the idea of an ending may not be the scariest aspect for an immortal. Indeed, forever is a very long time, and if there should be no way to bale out, a life in infinity can itself become an apt image of hell. After all, the agency of copies may well be limited, and for every uploaded mind that manages to shut itself down there may be a back-up copy that can be turned on again if that should be useful for the powers that run the machines. The *Black Mirror* episodes "White Christmas" and "White Bear" offer ghastly ideas about perpetual punishment for offenders, and the barbarous concepts of some religions that the sins of a short life are punishable in infinity could find their equivalent in a digital world in which criminals would have to serve multiple consecutive life sentences over several thousand subjective years.

But the question of control and power or the loss of agency is not restricted to crime and punishment, and the decision to be scanned may not even be voluntary. In *Permutation City* a female character wakes up in the digital world and realizes with horror that she has been scanned against her will. When the copy of the man who performed the forced scan enters her simulated bedroom, she has to face the fact that he…

> …was insane, unpredictable. Dangerous. […] In the flesh, she could probably have broken his fucking neck if she had to, to defend herself – but if he controlled this environment, she was powerless: he could rape her, torture her, do anything at all. (Egan, 264)

He does not, but the fear is real, and so would be the danger if scanning ever became a wide-spread and affordable practice.

I have, of course, only managed to touch upon some of the aspects of mind uploads and their fictional representations. The discussion is far from over, and the promises and warnings are repeated in a seemingly endless loop. It is, however, to be feared that the consequences of such a

technology would be scary rather than pleasant, and that the beautiful visions of digital immortality would have some terrifying side effects.

References

Brooker, C. (Writer) & Tibbetts C. (Director). (2013). White bear (Season 2, Episode 2) [TV series episode]. In Jones, A. & Brooker, C. (Executive Producers), *Black mirror*. Tilted Productions; Zeppotron.

Brooker, C. (Writer) & Tibbetts C. (Director). (2014). White Christmas (Season 2, Special Episode) [TV series episode]. In Jones, A & Brooker, C. (Executive Producers), *Black mirror*. Tilted Productions; House of Tomorrow.

Brooker, C. (Writer) & Harris, O. (Director). (2016). San Junipero (Season 3, Episode 4) [TV series episode]. In Jones, A. & Brooker, C. (Executive Producers), *Black mirror*. Tilted Productions; House of Tomorrow.

Dahl, R. (1992). William and Mary. In *The collected short stories*, (pp. 12-36). Penguin.

Damasio, A. (1994). *Descartes' error*. Avon Books.

Daniels, G. (Writer & Director). (2020). (Season 1) [TV series season]. In Daniels, G. & Klein, H. (Executive Producers), *Upload*. Tilted Productions; Deedle-Dee Productions, 3 Arts Entertainment, Reunion Pacific, Entertainment, Baral-Waley Productions & Amazon Studies.

Egan, G. (2008). *Permutation city*. Gollancz. (Original work published 1994)

Ghosh, A. (1996). *The calcutta chromosome*. Picador.

Graziano, M. (2016). Why you should believe in the digital afterlife. *The atlantic*. https://www.theatlantic.com/science/archive/2016/07/what-a-digital-afterlife-would-be-like/491105/

Hopkins, P. D. (2012). Why uploading will not work, or, the ghosts haunting transhumanism. *International Journal of Machine Consciousness, 4*(1), 229-243. https://doi.org/10.1142/S1793843012400136

Jameson, F. (2003). Future city. *New Left Review 21*, 65-79. https://newleftreview.org/issues/ii21/ articles/ fredric-jameson-future-city

Jones, S. C., Fereday, M., Richer, L., Davies, R.T. & Shindler, N. (Executive Producers). (2019). *Years and years* [TV series]. Tilted Productions; Red Production Company.

Kurzweil, R. (2000). Live forever. *Psychology today* https://www.psychologytoday.com/ intl/ articles/ 200001/ live-forever

Kurzweil, R. (2005). *The singularity is near: When humans transcend biology*. Viking.

Londhe, L. (1998). Einstein the second. In James Gunn (Ed.), *The road to science fiction vol. 6*: *Around the world* (pp. 535-547). White Wolf Publishing.

Martin, G. M. (1971). Brief proposal on immortality: an interim solution. *Perspectives In Biology And Medicine*, *14*(2), 339-340. https://doi.org/10.1353/pbm.1971.0015

Winterson, J. (2019). *Frankissstein*. Jonathan Cape.