The brain in a vat in cyberpunk: the persistence of the flesh

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Abstract

This essay argues that the image of the brain in a vat metaphorically encapsulates articulations of the relationship between the corporeal and the technological dimensions found in cyberpunk fiction and cinema. Cyberpunk is concurrently concerned with actual and imaginary metamorphoses of biological organisms into machines, and of mechanical apparatuses into living entities. Its recurring representation of human beings hooked up to digital matrices vividly recalls the envatted brain activated by electric stimuli, which Hilary Putnam has theorized in the context of contemporary epistemology. At the same time, cyberpunk imaginatively raises the same epistemological questions instigated by Putnam. These concern the cognitive processes associated with the collusion of human and mechanical creatures, and related metaphysical and ethical issues spawned by such processes. As a philosophical trope, the brain in a vat would appear to pivot on the notion of a disembodied subject consisting of sheer mentation. However, literary and cinematic interpretations of the image in cyberpunk persistently foreground the obdurate materiality of the flesh—often in its most grisly and grotesque incarnations.

Keywords: Brains in vats; Materiality; Disembodiment; Cyborgs; Cyberpunk

What is here proposed is that the brain in a vat image, an important trope in contemporary epistemology, is also an intriguing metaphor for one of cyberpunk’s pivotal preoccupations: namely, the relationship between the body and technology. In its capacity as both a philosophical and a scientific trope, the brain in a vat apparently posits a decarnalized subject whose existence hinges on the hypothetical detachment of mentation from embodiment. However, fictional articulations of the brain in a vat in cyberpunk literature and cinema emphatically postulate the obdurate persistence of the corporeal dimension, over and above cyberpunk’s obsessive concern with the body’s putative obsolescence. The meat is ultimately inescapable,
whether it is regarded as the prison of the soul abhorred by many a metaphysical
tradition or as a potential source of (sanctioned or illicit) delights. Cyberpunk’s
adaptations of the brain in a vat metaphor suggest that approaching the body
merely as a bundle of information and data is not just a philosophically specious
assumption. It is also, more importantly, an impediment to the achievement of a
generous comprehension of the relationship between the body and technology.

Cyberpunk focuses insistently on the mechanization of life, on the one hand, and
on the vitalization of the machine, on the other. The cyberpunk brain jacked into
the matrix is both a mechanized organ and an organic machine, comparable to the
brain in a vat stimulated by artificial impulses. Both scenarios point to shifting bio-
technic organizations of current human lifescapes. Concomitantly, cyberpunk is
concerned with epistemological issues akin to those raised by the brain in a vat
image. What cognitive processes are entailed by various forms of body–machine
interactivity? In what spaces, virtual or otherwise, does that knowledge materialize?
Problems of cognition are also inextricably intertwined with ethical questions
regarding both the legitimacy and the legitimation of knowledge and of its dissemi-
nation. The segments that follow concentrate on the following areas: the brain in a
vat as a philosophical issue; the brain in a vat’s symbolic analogues; variations on
the theme of the brain in a vat in cyberpunk.

Descartes posited the hypothesis that our beliefs are induced by an evil demon
capable of deceiving us into believing in the existence of physical objects, including
our own bodies. What we perceive, in fact, is merely a web of appearances. Descar-
tes’s hypothesis has recently been revamped to propose that nothing exists except
the brain and that the brain itself may be little more than an organ whose electro-
chemical activity is vat-sustained. The Cartesian genius has been replaced by the
no less malevolent figure of a nefarious scientist relying on high-tech gadgetry to
simulate the circumambient universe by directly stimulating our brains by means of
electrochemical impulses. Hilary Putnam elaborates this argument in *Reason, truth
and history* (1981), where the following scenario is depicted: while you were asleep
last night, an evil scientist surreptitiously entered your bedroom, anesthetized you,
took you to her/his laboratory and removed your brain. S/he then placed it in a
vat and connected it to a cutting-edge apparatus capable of transmitting to your
nerve endings signals that replicate the sensory impulses which inform your brain
in normal circumstances. You eventually wake up in what appears to be your fam-
iliar body and go about what appears to be your customary existence. Everything
looks and feels perfectly ordinary, since the fake signals fed by the computer pro-
gramme to which your brain is hooked up induces perceptions that are qualitat-
ively analogous to those experienced outside the vat. Hence: how do you know
that you are *not* a brain in a vat? how *could* you know it? Although Putnam’s
arguments aim to confound the sceptic by showing that the brain in a vat scenario
is self-refuting, this hypothetical anecdote, like Descartes’s demon scepticism,
immates that we have no reliable means of determining whether what we
perceive actually exists and that our beliefs, accordingly, are never unpro-
blematically justified.
Although the brain in a vat refers primarily to an epistemological problem, its symbolic repercussions can be detected in numerous spheres of cultural activity. Cyberpunk narrative and cinema rank high amongst them. Before considering the cyberpunk phenomenon, it is worth noting that the brain in a vat alludes to a central paradox of contemporary digital culture. Whilst scientific knowledge is supposed to make material reality intelligible, it increasingly appears to remove the materiality of the real. However, as both theoretical discussions of technology and technological applications themselves may seem to consign the flesh to obsolescence, it is undeniable that material conditions of production and consumption remain vitally important. The body, moreover, has most definitely not disappeared, many new technologies actually taking it as their principal area of examination and reconfiguration. Cyberpunk comments on these issues by emphasizing the intractable materiality of the bodies and environments inhabited by its characters. Interaction with digital technology may seem to guarantee options of escape from the shackles of embodiment, a fulfilment of the dream of leaving the flesh behind. Yet, the world of cyberpunk is a messy, sprawling galaxy wherein markedly carnalized beings roam, often aimlessly, amongst ever-proliferating heaps of gomi.¹

The unresolved tension between dematerialization and enduring materiality animates Putnam’s philosophy of science. Indeed the prospect of disembodiment upon which the brain in a vat image is based is never fully realized, envattedness ultimately constituting a logical—albeit not a physical—impossibility. On one level, Putnam seems to advocate the principle of dematerialization by refuting the proposition that mental states can be reduced to physical brain states. He argues, specifically, that it is possible to conceive of creatures with different physical constitutions (for example, humans, replicants, cyborgs, androids) capable of experiencing analogous mental states but endowed with quite different brains—or indeed no brains as such. Functionalism, as the philosophical perspective which views the mind as akin to a computer, is invoked as an alternative to the reduction of mentation to physical states. On another level, however, Putnam asserts the inevitable import of materiality with reference to the doctrine of semantic externalism. Imagine a world exactly like the one you inhabit, in which water is replaced by an analogous substance with a different microconstitution—e.g. XYZ rather than H₂O—also termed ‘water’ by that world’s own inhabitants. If you and a creature from that other world identical to you find a pool of stuff that evokes the thought ‘water’ in both of you, are you thinking the same thing? According to Putnam, you are not since your thoughts are about irreducibly different things: H₂O in one case, XYZ in the other. Insofar as you and the other creature are, by hypothesis, physically indistinguishable, the difference cannot be accounted for on the basis of internal states. Hence meanings are never, for Putnam, merely in the head.

Before engaging in a discussion of specific literary and cinematic texts, it seems appropriate to examine the relationship between the brain in a vat and the

¹ In Japanese the word gomi is a pejorative term for rubbish or junk. In cyberpunk, gomi is what the street cultures thrive on: yesterday’s commodities, retrofitted for present purposes.
ambiguous status of the corporeal dimension in contemporary culture, with reference to relevant perspectives on the interrelations of bodies, minds and machines. The brain in a vat stands for an abstract philosophical notion, yet it underscores the nature of the brain as an object. It reminds us that ‘the brain,’ as Marvin Minsky has pointed out, ‘happens to be a meat machine’ (quoted in McCorduck, 1979, p.70). Thus, like the culture of cyberpunk, it frustrates any aspirations towards an incorporeal, uncontaminated identity. The material dimension persists despite tendencies to decentre the human body and parallel dislocations of the real by virtuality. On one level, therefore, the brain in a vat gestures towards a scenario of rampant decarnalization. It constitutes, somewhat like cyberspace itself, a world of pure information that happens to take the form of a cyborgian apparatus but does not, strictly speaking, require any one specific physical configuration or distinctive mass. On another level, however, the brain in a vat constitutes a body in its own right, albeit woven from the elusive substance of information. Indeed, it could be said to incarnate the notion, promulgated by the cybernetic Body Art exponent Stelarc, that ‘cybersystems spawn alternate, hybrid and surrogate bodies’ wherein ‘information’ itself operates as ‘the prosthesis that props up the obsolete body’ (Stelarc, 1998, p. 116).

The ambiguous multi-accentuality of the brain in a vat is borne out by further symbolic connotations. On one level, it suggests images of containment and enclosure reminiscent of humanist models of bourgeois interiority ranging from the camera obscura to the television set, the PC and the insulated exhibition space. To this extent, it replicates the logic of the ‘closed-world discourse’ articulated by Paul Edwards. A closed world is ‘a radically bounded scene of conflict, an inescapably self-referential space where every thought, word, and action is ultimately directed back toward a central struggle’ (Edwards, 1997, p.10). In the case of the brain in a vat, the ‘struggle’ is for the control of the disembodied brain’s every function. However, as a potential inauguration of novel approaches to knowledge, the brain in a vat also resembles the ‘cyborg discourse’ posited by Edwards himself and, more emphatically, by Donna Haraway as a terrain for the production of uncertainly bounded signifying circuits. For Edwards, an ‘intimate connection’ exists between closed-world discourse and cyborg discourse insofar as the latter constitutes the pop version of cold-war culture. Yet, cyborg discourse also introduces alternative and hence potentially transgressive identities ‘through integrated human-machine systems and technologies’ (Edwards, 1997, p. vi). Haraway resorts to the image of the cyborg to argue that all identities are composite and partial. Cyborg discourse supplies a paradigmatic metaphor for an ironic hybridization of subjectivity capable of disrupting philosophies of sameness and their dreams: ‘Irony is about contradictions that do not resolve into larger wholes, even dialectically, about the tension of holding incompatible things together because both or all are necessary and true. Irony is about humour and serious play’ (Haraway, 1991, p. 149). In foregrounding the hybrid character of all identities, Haraway drastically disrupts many time-honoured ‘dualisms’ of Western humanism that have been ‘systemic to the logics and practices of domination of women, people of colour, nature, workers, animals’ and have persistently emplaced the One as free and
invincible and the Different as subordinate and vulnerable. Yet, if ‘to be One is to be autonomous, to be powerful, to be God’, it is also, ultimately, ‘to be an illusion’ (Haraway, 1991, p. 177).

The brain in a vat may seem to emplace the brain as the privileged term in the brain-body binary by harnessing consciousness to the priorities of a latter-day humanism, or indeed a ‘trans-humanism’ which, whilst acknowledging profound changes in the character of embodied existence, still clings to a myth of transcendence. Hence, it would appear to perpetuate the prejudices of traditional research in the field of artificial intelligence whose aim was the devising of automata based on a model of the human nervous system as a hierarchical network controlled by a governing centre. However, in exploring the symbolic connotations of the brain in a vat, we should also take into consideration the alternative approach promulgated by connectionism. This aims at producing broadly intelligent machines by linking together mechanical units comparable to neurons. Such machines resemble the human brain in a more biologically correct fashion than conceptions of artificial intelligence based on hierarchical centralization, since brain design is more readily comparable to a pandemonium of parallel-processors in search of some kind of neuronal equilibrium than a centralized operation. Connectionism experiments with layering (or subsumption architecture): the automaton is assembled through the layering of separate units, each corresponding to a specific behaviour system, without any dominating ruler from above.

The brain in a vat also constitutes, arguably, a metaphorical inversion of the Cartesian image of the ‘ghost in the machine’. Whilst the latter refers to the mind’s containment within the body, the brain in a vat refers to the containment of the body, i.e. the brain as a physical object, within the mind, i.e. a speculative and fundamentally abstract apparatus. The ideal of the body’s management within a conceptual framework, incidentally, is also a primary objective of one of the most spectacular techno-bodily practices emerging from the late twentieth-century and early twenty-first-century ideation of corporeality as a product of codes and of flesh, accordingly, as a system of information: the Visual Human Project (VHP). This consists of a virtual atlas of the human anatomy that takes advantage of the ever-growing capacity of highly sophisticated computers to handle momentous amounts of visual data to create a three-dimensional recording of bodies whose volume and depth can be freely manipulated within the space of the digital screen. The VHP aims at achieving complete visualization of the human body, thereby realizing one of biomedicine’s most inveterate fantasies. At the same time, the project pursues a techno-scientific dream of exhaustive access to the body’s interior analogous to the one pursued by Putnam’s hypothetical evil scientist. Whilst Putnam’s character seeks to contain the body, as both a field of action and an object for scientific observation, by reducing it to the single metonymic presence of the brain in a vat, the VHP employs visual editing and textual containment as its

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2 For a discussion of this term—and its relation to ‘post-humanism’—see Hayles (1997).
3 For a detailed investigation of this model see Dreyfus (1993).
pivotal strategies. The digitalized anatomy is not merely visualized but, more importantly, translated into a text. As Bruno Latour has observed, the shift of emphasis from a living entity to a visual text about the entity is a salient feature of all scientific enterprises, insofar as the principal objective of science is to translate amorphous masses of natural, material objects into symbolic representations such as graphs and formulae (Latour, 1990). Both the VHP and the brain in a vat could be regarded as instances of conceptual representation of the type theorized by Latour. Simultaneously, both point to a desire to disengage an abstract notion of life from the actual flesh, thus encapsulating what Lisa Cartwright posits as modern medicine’s governing aim: ‘No longer concerned with the body as such, medicine is interested in isolating life—in regulating and extending it’ (Cartwright, 1995, p. 82).

A further parallel may be traced between the brain in a vat and the concept of entropy, especially as formulated in the context of information theory by Claude Shannon (1948). According to the second law of thermodynamics, entropy is the ever-increasing degree of randomness in any system, the agent of chaos causing order to run down and to become aleatory or simply meaningless. In information theory, entropy designates the random element that increases the level of potential information content in a message: ‘It should be remembered that, in information theory, entropy is the measure of messages that might have been sent, but were not. If an actual message is selected from a great number of possible messages, then it resolves a lot of uncertainty and so conveys a large amount of information’ (Campbell, 1982, p. 67). Thus, entropy confuses matters but simultaneously enhances a message’s both obvious and latent levels of signification. As advocated by post-structuralism, meaning is no less a product of the unsaid than of the said. The brain in a vat could be seen as an entropic agent of disorder insofar as it radically destabilizes the putatively natural ‘order of things’. Nevertheless, its multi-accentuality, interdisciplinary relevance and fascinating coalescence of science and fantasy usher in the prospect of an ever-growing and tantalizing proliferation of meanings and hypotheses. Whichever way we look at it, the brain in a vat indubitably operates as a potent metaphor for ever-increasing levels of integration of physiological and prioceptive processes into the phylum of the socioeconomic machine.

According to the scientist Hans Moravec, it will soon be possible to encode mental functions in the form of computer software through a relatively straightforward process which he terms ‘transmigration’ (Moravec, 1988). This hypothetical notion has already come to fruition in the fictional domain of cyberpunk. In G. A. Effinger’s trilogy When gravity fails (1987), A fire in the sun (1990), and The exile kiss (1991), for instance, characters gain alternative identities by plugging software consisting of personality patterns, or moddies, into their wired brains. Although those identities are essentially imaginary, the trilogy concurrently intimates that personality modules may also be fashioned by downloading onto a chip the contents of the brain of a real person, through a kind of mental rape. A variation on this theme is offered by Kathryn Bigelow’s film Strange days (1996), in which any occurrence, actual or imagined, can be transferred to portable software and then reexperienced with the aid of a cap-like wired contraption. In the process, people
are able to relive the thoughts and emotions which accompanied the event and to infiltrate other people’s brains and mental projections. What we are presented with, therefore, is not a case of physical removal of the brain from the body of the type proposed in *The man with two brains* (dir. Carl Reiner, 1983) but rather a case of a synthetic brain in a vat superseding the functions of the biological brain. A scenario germane to the one offered by Bigelow features in David Cronenberg’s *eXistenZ* (1999), where people have *game ports* installed into their spines, a procedure available in any shopping mall, comparable to tattooing and body-piercing, that interface with *game pods* via a connector cable vividly reminiscent of an umbilical cord. When the attempted assassination of the designer of VR games Allegra Geller forces her to plug into *eXistenZ*, a popular game she has created, a series of unexpected ludic options is unleashed. Paradoxically, although we might expect Allegra not to be surprised by elements of games she has designed herself, she is by no means in control of the situation and of its random ramifications. The image of a technologically stimulated neural network bears close affinities to that of the brain in a vat, as does the notion that technology may enable us to leave the body ‘behind’. However, Cronenberg’s film also conveys a pervasive sense of uncertainty about the powers of technology. This is encapsulated by the atmosphere of unpredictability permeating Allegra’s adventures in the virtual space of *eXistenZ*.

Personality modification is the central theme of W. J. Williams’s novel *Hardwired* (1986), where characters routinely modify their identities, including sexual ones, through a tremendously powerful programme called Project Black Mind. This ‘sets up a mind in crystal. Then goes into another mind, a live mind, and prints the first mind on top of it. Imposes the first personality on the second. Backs up the program’ (Williams, 1986, p. 293) and hence obliterates the original character of the invaded brain. Pat Cadigan likewise explores the interrelated motifs of neural invasion, substitution and erasure in *Mindplayers* (1987), where artificial identities can be bought from the Power People company. Although the game may seem to offer limitless freedom, forms of mindplay considered illegal by the Brain Police are brutally punished through *mindsuck*, a process that expunges the player’s personality altogether. In Rudy Rucker’s novel *Software* (1982), the brain in a vat trope comes to life in the ordeal of an elderly scientist who agrees to have his brain functions removed from his body by powerful automata, in exchange for an immortal robot body. Much to his chagrin, he soon realizes that immortality does not grant him unconditional power as his mental faculties have actually been confiscated and stored in a Mr Frostee ice-cream truck. In Bruce Sterling’s fiction, the theme of brain penetration is developed in tandem with that of physical transformation through the deployment of intrusive technologies. Sterling indeed views ‘the theme of body invasion: prosthetic limbs, implanted circuitry, cosmetic surgery, genetic alteration’ as one of cyberpunk’s keynotes (Sterling, 1986, p. ix). In some of his work, such as *Schismatrix* (1985), Sterling takes the idea of body invasion so far as to present worlds in which human beings have become obsolete and their bodies have been replaced by multifarious post-human species.

A fairly overt dramatization of the brain in a vat motif is supplied by Cameron Crowe’s *Vanilla sky* (2001). In the film’s climactic moments, we discover that about
half of the images we have been watching do not relate to the characters’ actual experiences but are, in fact, projections of the dead protagonist’s fantasies, brought into virtual existence by the computerized Life Extension scheme through the stimulation of his vatted brain, preserved after death. An even more tantalizing instance of the interweaving of reality and simulation is provided by Paddy Bostock’s *Pull over* (2003), a narrative that, whilst not overtly or exclusively belonging to the cyberpunk category, nonetheless shares some of its concerns. In the central section of the novel, the protagonist Mike McGinity is subjected to a complex admixture of brain-washing, physical torture and psychosomatic manipulation, designed to guarantee his active contribution to a murderous plan. Whereas in *Vanilla sky* the simulated nature of events is quite unproblematically declared, in *Pull over* no conclusive explanation is provided. To this extent, the novel could be said to mirror more faithfully the atmosphere of undecidability which Putnam’s cognitive scepticism posits as a crucial ingredient of the brain in a vat trope. Indeed, *Pull over* articulates a scenario wherein neither the fictional personae nor their readers are in a position to ascertain with any finality the extent to which the narrated events are real or hyperreal, although they are indubitably surreal in the aesthetic sense of the term. The ordeal undergone by the central character in America’s ‘underbelly’, a secret realm putatively situated beneath the Oregon desert, may be taking place in an actual, solid location only marginally enhanced or distorted by technology. Or, equally plausibly, they may be occurring in a minimalistically flimsy reality crucially dependent on digital imaging and editing. Alternatively, the entire action may amount to a fundamentally hypothetical construct in which the dividing line between reality and hyperreality is blurred beyond any chance of clarification. The following exchange between Mike McGinity and his persecutor captures some of the novel’s ambiguous take on simulation:

‘None of this is real, right? Not the underbelly, not the mission, nothing. A short time ago I was in hell or some simulacrum of it and now I’m back in one piece. And if this is all no more than an illusion, I could walk out any time I wanted.’

‘So try it, pointy-head. Others have tried before you. Only they didn’t make it. (…)’

‘How about this scenario, Hank? (…) Maybe there are a few of you around here but the rest is simulation. No work-out room, no army, no council. (…)’

‘Okay, so some of what you see around here is real and some ain’t. Kind of a subtle mix though, am I right? Kind of hard to tell the difference.’

*(Bostock, 2003, p. 180)*

At the same time, it is virtually impossible to establish whether the protagonist’s predicament is experienced by his brain alone or by his carnalized consciousness. In other words, although Mike McGinity has doubtlessly been *kidnapped*, doubts remain as to what particular ‘bits’ of him have been purloined and conveyed to
the Oregon underworld. Mike may embody the concept of the brain in a vat in a literal fashion. Yet, any proclivity to opt exclusively for this metaphorical reading is frustrated by the novel’s sustained ambiguity and irony: though the protagonist may well be a brain in a vat, this does not for a second detract from the intensely physical quality of his experiences—from his vigorous sexual encounters to the consumption of lavish gourmet meals, from his exertions in a state-of-the-art cybergymnasium to a Near Death Experience in a post-human hell infested by abject creatures.

The brain in a vat is frequently literalized by cyberpunk through images of organs that are not merely vat-supported and vat-stimulated but, even more ominously, vat-grown and vat-implanted. Moreover, as a metaphor, the brain in a vat is closely related to cyberpunk’s articulation of biotechnological discourses. Importantly, implants and transplants, genetic engineering and the appropriation of a formidable galaxy of data do not make the body invulnerable or indeed more durable. In fact, they support the exploitation, abuse, and ultimately the commodification of corporeality, frequently through the illegal trade of body parts by global corporations and their socioeconomic imperatives. Indeed, organ banks and support vats only yield promises of immortality to the mega-wealthy. The donors, conversely, belong to cyberpunk’s multiple ranks of underprivileged, disenfranchised and varying deranged people, and are often robbed of their materials without having given their consent. ‘Now, some night, you get maybe too artistic’, Case is warned, ‘you wind up in the clinic tanks, spare parts’ (Gibson, 1995, p. 11). The enhancing surgery to which Case is subjected in Gibson’s Neuromancer, for example, is designed to maximize his usefulness for the gratification of corporate greed. Molly would appear to have deliberately opted for prosthetic enhancement. Nevertheless, the realization that in the absence of her artificial adjuncts she would have no modicum of power virtually eclipses the notion of free choice.

*Burn*ing chrome further typifies Gibson’s paradoxical articulation of the relationship between the body and cybertechnology by simultaneously presenting the natural organism as an incomplete entity, wholly dependent on the possibility of prosthetic enhancement, and highlighting the central role played by that body in the acquisition of the valuable prosthesis. Rikki, for example, is driven by the desire to purchase the ‘Zeiss Ikon Eyes’ which, in her fantasies, will enable her to become a simstim star (Gibson, 1995, p. 211). It is her ambition to edit her natural form in such a way that the body itself may be transcended in the pursuit of virtual fame. But in order to purchase the coveted prosthetic adjunct, Rikki (like Molly in Neuromancer) has no choice but sell her body for the dubious delight of ‘closet necrophiliacs’ (p. 216).

Although the cyber-aristocrats who control the dominant economies, such as the Tessier-Ashpools, may postpone death by having their cells preserved in support vats, Gibson does not supply one single example of triumphant return to the world of the flesh. Thus, while Count Zero’s Virek retains the power to project virtual images of his body in a variety of simulated contexts, there remains a fundamental disparity between these semblances and the unsavoury reality of a physical body consisting of vat-supported, seething hordes of rioting cells ravaged by multiple
cancers. Gibson’s fiction also questions radically the image of man as a powerful automaton, based on the futurist dream of a solid and sealed male physique capable of counteracting the disturbing sense of boundlessness traditionally associated with femininity. The picture of a body reduced to a mob of rampaging fragments swarming ceaselessly in the artificial womb of a support vat is hardly congruous with Filippo Marinetti’s ideal.

Several of Gibson’s short stories underscore the enigmatic character of the relationship between the body and technology by speculating explicitly about the technological programming of the brain along brain in a vat-related lines. In ‘Johnny Mnemonic’, the eponymous hero’s brain has been shaped through microsurgery to resemble a computer wherein millions of data are stashed as megabytes, without his knowledge or recollection of their content. Johnny ends up ‘making good money’ as a consequence of a cyborg dolphin being able to ‘read the traces of anything that anyone ever stored’ inside him by identifying the passwords buried in the chips of his computerized brain (Gibson, 1995, p. 36). Despite his financial success, the protagonist is deeply troubled by his lack of control over his condition and dreams of the moment when this cancer will be excised from his body: ‘The program. I had no idea what it contained. I still don’t. I only sing the song, with zero comprehension’ (Gibson, 1995, p. 31); ‘one day I’ll have a surgeon dig all the silicon out of my amygdalae, and I’ll live with my own memories and nobody else’s’ (Gibson, 1995, p. 36).

The character of Angie Mitchell in Count Zero and Mona Lisa overdrive supplies a particularly intriguing variation on the brain in a vat theme. As a result of a Faustian pact sealed by her father in order to gain access to highly valuable data, Angie has had intricate programmes inscribed in her brain via which she can enter cyberspace without any need for trodes: ‘Her father was dead, seven years dead, and the record he’d kept of his life had told her little enough. That he’d served someone or something, that his reward had been knowledge, and that she had been his sacrifice’ (Gibson, 1995, p. 28). Angie’s experiences mirror the dual nature of cyberpunk as a genre wherein technology and mythology unremittingly coalesce. Having scanned her, Rudy endeavours to describe the physiology of Angie’s brain in scientific terms: ‘What is it, some kind of cancer? . . . It’s all over her head . . . Like long chains of it . . . It’s some kind of . . . Not an implant. Graft’ (Gibson, 1995, p. 189). However, there is ultimately no rational explanation for the magical quality of dreams in the course of which Angie interacts with voodoo figures and is frequently heard ‘talking in the tongues’ (Gibson, 1995, p. 192). It is also noteworthy that virtuality is portrayed by Gibson as a situation that engages intensely the entire sensorium. During a digital examination of her sensory responses, Angie is told to stroke her bedspread and ‘the raw silk and unbleached linen’ become increasingly alive under her touch: ‘Angie felt the weave thicken beneath her fingertips. . . . She could distinguish the individual fibers now, know silk from linen . . . Her nerves screamed as her flayed fingertips grated against steel wool, ground glass . . .’ (Gibson, 1995, p. 62). The dreams experienced by Angie, moreover, are themselves acutely physical: ‘there really was something there, another person—at
least three of them—speaking through Angie. And it hurt Angie when they spoke, made her muscles knot and her nose bleed’ (Gibson, 1995, p. 105).

A further metaphorization of the brain in a vat is supplied by Gibson’s *Idoru*. The ‘Idoru’ is ‘a personality-construct, a congeries of software agents, the creation of information-designers’: a ‘synthespian’ (Gibson, 1997, p. 92). Thus, it illustrates the proposition that bodies are technological entities and that technology, in turn, embodies specific forms of cultural production and consumption. What is most beguiling and paradoxical about the *idoru* is that, like the brain in a vat, it is a synthetic construct on the one hand, and an object on the other. One of the novel’s central themes is the arrangement of an *alchemical* marriage between the synthetic star and an ostensibly real rock star. Another pivotal motif is the idea that the *idoru*, although artificial, carries traces of a personal history. Indeed, it is inscribed in a spiderweb of memories, echoes of submerged life stories and ephemeral glimpses of lost objects, scenes, colours, and sounds. Upon first encountering the *idoru*, Laney is overwhelmed by a cascade of apparitions which have no logical link with the synthetic star’s cyberworld and, in fact, reverberate with the vestigial images of an ancient landscape: ‘In the very structure of her face, in geometries of underlying bone, lay coded histories of dynastic flight, privation, terrible migrations. He saw stone tombs in steep alpine meadows, their lintels traced with snow. A line of shaggy pack ponies, their breath white with cold, followed a trail above a canyon. The curves of the river below were strokes of distant silver. Iron harness bells clanked in the blue dusk’ (Gibson, 1997, pp. 175–176). The ‘simulated reality’ of these images is comparable to the character of the experiences induced in the brain in a vat.

Redolent of connectionism, the *idoru* superimposes diverse textual layers upon one another, with each layer covering yet never erasing the previous ones, in a practically limitless process of increasing complexity: ‘Rei’s [the *idoru*’s] only reality is the realm of ongoing serial creation... Entirely process; infinitely more than the combined sum of her various selves. The platforms sink beneath her, one after another, as she grows denser and more complex’ (Gibson, 1997, p. 202). Concurrently, Gibson’s speculations about the viability of *marriages* between humans and synthetic constructs, for which the brain in a vat is a potent metaphor, intimates that their interpenetration is inevitable because neither of them is complete or self-sufficient. If the coupling of biological and artificial entities serves to organize bodies and desires, it must be emphasized that no organization is ever conclusive. Any structure of meaning and desire entails as a corollary the possibility of unpredictable change. The *idoru*, specifically, is a thoroughly assembled construct but the construct only works, as an organization of data, insofar as it undergoes ongoing transmutations and insofar as it is allowed to have its own ‘dreams’ (Gibson, 1997, p. 237). In other words, any organization, albeit necessary for meaning and communication to occur, is never final. It is inherent in the nature of any organism that it may become disorganized. An *idoru* or idol star serves to

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4 For an extended treatment of *Idoru* to which this section is closely related, see Cavallaro (2000).
channel the media-generated yearnings of fans and consumers into an intricate structure of mutating images. However, *desiring-machines* like the *idoru* also make us aware of a tantalizing alternative—what it might be like to enter a zone of anarchic flow. As Gilles Deleuze and Félix Guattari argue:

> Desiring-machines work only when they break down, and by continually breaking down. . . . Desiring-machines make us an organism; but at the very heart of this production, the body suffers from being organized in this way, from not having some other sort of organization, or no organization at all. . . . Every coupling of machines . . . becomes unbearable to the body without organs. Beneath its organs it senses there are larvae and loathsome worms, and a God at work messing it all up or strangling it by organizing it. . . . the desiring machines attempt to break into the body without organs, and the body without organs repels them, since it experiences them as an over-all persecution apparatus. (Deleuze & Guattari, 1984, pp. 8–9)

The *idoru* is an organized body-construct produced by technological means. It is also a means of organizing the bodies of its fans by technologically harnessing their subjective desires. At the same time, however, it is a fluctuating body whose technological permutations are capable of evoking mythological images. In regimenting other beings’ desires, the *idoru* simultaneously shatters their sense of wholeness by exposing them to a chaotic universe of decomposition. Neither Gibson nor Deleuze and Guattari propose either a celebration of a totally fluid existence, the body without organs, or an acceptance of regimentation, but rather a dialectical relationship between flux and order. Desiring-machines are not, ultimately, categorizable as either policing agencies designed to discipline the body, or as subversive agencies inciting the body to rebellion. Endowed with ambivalent powers, desiring-machines simultaneously generate spaces for the ‘mechanization of passions’ and spaces for ‘characterizing the technology in corporeal terms’ (Vasseleu, 1997, p. 55).

Like the brain in a vat, as a simultaneously abstract and material entity, the *idoru* points to the intersection of two ostensibly incongruous phenomena: the translation of the physical body into a hypothetical philosophical concept, and the corporealization of intangible cognitive processes. This ambivalence is further problematized in *Idoru* through the combination of high technology and psychic powers, virtuality, mysticism and the harsh realities of profit-driven corporations wherein ‘lives’ are routinely ‘destroyed, and sometimes re-created, careers crushed or made anew in guises surreal and unexpected’ in a ‘ritual letting of blood’ involving media leviathans and naive fad-hunters (Gibson, 1997, p. 38). Laney exemplifies the text’s overall ambiguity by uniting the mystical traits of the traditional soothsayer and those of the cyberspace expert defined by his relationship with computer networks. These elements coalesce to produce very uncommon skills:

> [Laney] had a peculiar knack with data-collection architectures . . . he was an intuitive fisher of patterns of information: of the sort of signature a particular individual inadvertently created in the net as he or she went about the mundane yet endlessly multiplex business of life in a digital society. (...) He’d spent his
time skimming vast floes of undifferentiated data, looking for ‘nodal points’. (Gibson, 1997, p. 25)

This peculiar talent is fundamentally the product of chemical experiments, ‘drug trials’ to which Laney was subjected as an inmate of a ‘Federal Orphanage’ in his teens. The tests were designed to research the physical and psychological effects of super-illegal substances potentially able to turn their users into monomaniacal automata (Gibson, 1997, p. 132).

Laney underlines the hybrid status of his powers by describing them both in scientific terms, as an ability to process ‘broad-spectrum input’ through ‘pattern recognition’, and in imaginary terms, as analogous to ‘seeing things in clouds . . . except the things you see are really there’. In this context, the human body is rendered ephemeral by its intercourse with technology, codified on the basis of its symbiotic relationship with machines and indeed produced by machines. Yet, the body still plays a pivotal role as the marker of individual agency, what makes one particular ‘signature’ recognizable as belonging to a specific person. Thus Laney has difficulties tracing the rock’n’roll hero Rez’s personality because Rez has been constructed in purely corporational terms and cannot therefore ‘generate patterns’. Trying to identify Rez’s signature within hordes of data, all Laney keeps finding is an utterly disindividualized image: ‘it’s like trying to have a drink with a bank’. Even in a thoroughly digitalized culture where all experience, both personal and collective, may ostensibly be divorced from its material agents, the individual body stubbornly goes on asserting itself as the bearer of traces which, were the body to be elided, would become totally inaccessible. You cannot construct a pattern of any kind about someone who is ‘not a person’, who ‘doesn’t drink’ and for whom ‘there’s no place . . . to sit’ (Gibson, 1997, p. 148). Is Rez even more akin to a brain in a vat than the idoru it/herself?

It is also worth exploring the collusion of brain in a vat-related imagery and the ambiguous status of the figures and constructs, frequently AIs of varyingly ‘vatted’ orders and degrees, that are supposed to control cyberspace and turn out, in fact, to have only a limited knowledge and a slippery grasp of the matrix’s mysteries. In Neuromancer, for instance, Wintermute plays the role of something of a creation deity, able to access the catatonic body of Corto, an utterly dehumanized residue of war, and to turn him into Armitage, a cybernetic weapon. Wintermute, therefore, holds the capacity to construct alternative life forms. He has control over Case and Molly and over Armitage/Corto and seems to have a clear idea of what he needs in order to fulfil his aim, namely to merge with Neuromancer. Yet, Wintermute is neither omnipotent nor omniscient: most crucially, he does not know and indeed cannot know the ‘magic word’ that will activate the ‘ceremonial terminal’ by means of which Neuromancer could be reached: ‘You might say what I am is basically defined by the fact that I don’t know, because I can’t know. I am that which knoweth not the word. If you knew, man, and told me, I couldn’t know. It’s hardwired in’ (Gibson, 1995, p. 207). Mona Lisa overdrive further suggests that AIs are at once godlike and toylike entities whose decisions are frequently arbitrary and capricious. For example, the AI Continuity is portrayed as a writer whose
pursuit is not scientific knowledge but rather a somewhat onanistic version of self-entertainment: ‘Continuity was writing a book. Robin Lanier had told her [Angie] about it. She’d asked what it was about. It wasn’t like that, he’d said. It looped back into itself and constantly mutated; Continuity was always writing it. She asked why. But Robin had lost interest: because Continuity was an AI, and AIs did things like that’ (Gibson, 1995, p. 59). AIs may be construed as supreme divinities but they themselves are sceptical, evasive and often distressingly laconic whenever addressing this topic is on the agenda. When Angie, for example, engages Continuity in a quasi-theological debate about the relationship between the matrix and spiritualism, all she obtains are slippery and monosyllabic responses:

‘If there were such a being [God],’ she said, ‘You’d be a part of it, wouldn’t you?’
‘Yes.’
‘Would you know?’
‘Not necessarily.’
‘Do you know?’
‘No.’
‘Do you rule out the possibility?’
‘No.’
‘Do you think this is a strange conversation, Continuity?’

...'
‘No.’

(Gibson, 1995, p. 39)

The variations on the brain in a vat image supplied by Gibson in his depiction of these quirky AIs are definitely not passive entities. In fact, they play a key role in the redefinition of valid parameters of knowledge storage and transmission. Thus, they highlight the notion, persuasively advocated by Friedrich Kittler, that each specific historical period is characterized by a ‘discourse network’ (Kittler, 1990) resulting from particular technologies and related forms of data-processing. For example, contemporary phenomena of decarnalization associated with digital technology found their inception in the nineteenth century through the advent of technologies such as the typewriter whose principal effect was that of severing the act of writing from the material body. Some of Gibson’s AIs propose precisely that as technology produces alternative lifeworlds, new forms of consciousness and discourse must emerge in tandem and old standards must be discarded. According to Wintermute, for example, the proposition that minds can be ‘read’ is an anachron-
istic figure of speech resulting from a doxastic attachment to obsolete epistememes and related discourse networks:

‘Can you read my mind ... Wintermute ...?’

‘Minds aren’t read. See, you’ve still got the paradigms print gave you, and you’re barely print literate. I can access your memory, but that’s not the same as your mind.’ He reached into the exposed chassis of an ancient television and withdrew a silver-black vacuum tube. ‘See this? Part of my DNA, sort of ...’ He tossed the thing into the shadows and Case heard it pop and tinkle. ‘You’re always building models. Stone circles. Cathedrals. Pipe organs. Adding machines. I got no idea why I’m here now, you know that? ...’

(Gibson, 1995, p. 204)

Like Gibson, Larry and Andy Wachowsky present the matrix as the totality of the digital data that circulate incessantly in our space–time continuum. While Gibson ironically quizzes the reality of those data by suspending both judgment and disbelief over their referential validity, The matrix explicitly emphasizes the status of reality as an ‘illusion’, a dream constantly on the verge of deteriorating into the darkest of nightmares. In ideating so-called reality as a ‘simulated world’, the film is redolent of the writings of Jean Baudrillard, who is actually mentioned in an early draft of the script, and particularly of his views on simulation. Baudrillard’s influence is graphically acknowledged through the introduction of an image of one of his best known books, Simulacra and simulations, in the form of a hollowed-out tome in which the hero, Neo/Thomas Anderson, stores the computer programmes which he illegally produces and sells. The fake volume’s hollowness is a cogent visual correlative for the deceitful vacuousness of the matrix-world: a phantasmatic domain wherein simulacra do not imitate a preexisting reality but rather replace reality, and signs fail to bear any correspondence or resemblance to the material world. Baudrillard describes this world in terms of hyperreality: an order of representation able to seduce both the body and the mind because it does not look in the least unreal but, in fact, more real than real (Baudrillard, 1983). The hypothetical world depicted in The matrix is an illusion that works, like the brain in a vat, insofar as it is capable of making us oblivious to its utterly imaginary status. This notion is summed up by the film’s definition of the matrix itself as the network of images and codes that is doxastically accepted as real but actually consists of a ‘computer-generated world’ produced ‘to keep us under control’. This sprawling web of data is unremittingly ‘everywhere’ and by means of its very pervasiveness manages to ‘keep you a slave’. A ‘neural interactive simulation’, vividly reminiscent of Gibson’s portrayal of cyberspace as a consensual hallucination, the matrix-world is engineered so as to prevent its inmates from discovering that the world is indeed a ‘prison’ and that ‘humankind’ itself, as Ian Nathan remarks, ‘vegetates in billions of gloop-filled tanks. Mere battery packs for the machineworld’ (Nathan, 1999, p. 17).
The illusory nature of reality is most effectively conveyed through a radical displacement of conventional perceptions of time and memory. Although the inhabitants of the matrix naively assume that they are living in the year 1999, the story is actually set in some year approximately close to 2199. The significance of the year 1999 is that this is supposed to have marked the apocalyptic ruination of the planet Earth as a result of a fatal conflict between humans and Artificial Intelligences. The world that people have learnt to deem real is actually a simulacrum of the spaces destroyed by that lethal confrontation, a virtual reality conducted by a technocracy of AIs and by technomutants committed to the fierce repression of the only extant resistance group. This consists of rebel computer hackers located in a rickety hovercraft relentlessly threatened by biomechanoid octopodes and tarantulas reminiscent of H. R. Giger’s larval and insectile creatures.

The *matrix* dramatizes the concept of hyperreality by presenting intensely physical and often brutally violent confrontations amongst people who are not actually people but rather digital representations of bodies that are themselves passively recumbent on simstim chairs. Nevertheless, like Gibson’s cyberpunk, the film stresses that the physical body is not transcended by such means: one can die in a cybernetically simulated location as easily as in a dark alley. This is because once the sensorium has been shattered by a simstim experience, the body has no alternative but to collapse, for mind and body, *The matrix* insistently intimates, cannot subsist without each other. Moreover, the resistance leader Morpheus employs very physical strategies as a means of achieving his ultimate aim: namely, liberating people by exposing the crimes of the technologies that have constructed the matrix through his own subversive technologies. These involve wrestling his trainees into often gruesome visions and hallucinations that hark back to a submerged world of primal fantasies.

The centrality of the body is conveyed by the film’s very title: if ‘matrix’ is a familiar synonym of cyberspace in basic cyberpunk parlance, its original Latin meaning is ‘womb’. This points to a crucial aspect of the movie and of its imagery. Although the world of *The matrix* is essentially a brain in a vat, a technologically induced and sustained simulation of reality of the kind described by Hilary Putnam, it is also a womb of sorts: an ancestral uterus in which the dynamics of conception, embryonic development and birth are continually relived in a graphic explosion of universal gore and primordial slime.

In the Wachowsky brothers’ film, therefore, the image of the matrix stands simultaneously for cyberspace and for the maternal chora. The concept of a post-human womb that simultaneously functions as the repository of intricate webs of data also plays a prominent part in Steven Spielberg’s *Minority report* (2002). The flotation tank in which the precogs (precognitive humans) drift, their brain waves constantly tapped by computers, brings to mind at once Putnam’s brain in a vat and a womblike receptacle filled with life-sustaining amniotic fluid. This aspect of the setting signals a significant point of departure (one of many in the film) from the Philip K. Dick story (1956) from which *Minority report* draws inspiration. The original narrative does not in any way evoke the gestation metaphor or any of the images of fluidity associated with it. Emphasis, in fact, is placed on the restrictive
and unyielding nature of the machinery to which the three precogs are connected as they contemplate the future. The prodigious, though ‘deformed’ and ‘retarded’ (Dick, 2002, p. 4), beings are depicted as ‘three gibbering, fumbling creatures’ forever ‘imprisoned in their special high-backed chairs, held in one rigid position by metal bands, and bundles of wiring, clamps’ (Dick, 2002, p. 3).

Futuristic technology, therefore, does not only look forward to the science-fictional world of 2054 in which eerily prescient beings are able to pick up images of premeditated crimes and make it possible for an elite taskforce of officers to arrest in advance their would-be perpetrators. In fact, it also looks backward to an atavistic world of ongoing conception and birth. It is noteworthy, in this respect, that the real-life mother of one of the three precogs, Agatha, brutally murdered by the initiator of the Precrime scheme, should play a posthumously crucial part in the exposure of a harsh reality of mendaciousness and corruption. The coexistence of a dazzling future world and an ancient one receding into time immemorial is effectively replicated by the film’s architectural setting, where futuristic skyscrapers coalesce with flaking nineteenth-century buildings, and where streams of virtual adverts flicker and crawl across the facades of shiny cyberbuildings and derelict tenement blocks alike. The film’s multidimensionality, moreover, is borne out by its generic affiliations: whilst deploying strategies that many contemporary audiences have come to associate almost instinctively with cyberpunk, it is indebted to the *noir* crime fiction of Dashiell Hammett and Raymond Chandler.

Taking into account both the precogs’ specific location and the wider context of 2054 Washington, it could be argued that the kind of metaphorical brain in a vat presented in *Minority report* does not amount to pure mentation seized within a sealed, clinically sanitized and electronically saturated circuit but a permeable and ever-shifting galaxy of flashing premonitions and *déjà vu*. Whereas Putnam’s evil scientist seeks to obliterate the body that houses the ‘vattable’ brain, the biotechnological economies depicted in *Minority report* are very much body-oriented. In the film, computers are omnipresent and their apparently limitless powers are bolstered by their elusive transparency: physically, they are vitreous, fabulously slim and given to gliding and shifting in mid-air. The currently familiar image of the PC squatting on your desk like a pre columbian deity would appear to have become quite outmoded by the time the year 2054 chimes in. Nevertheless, these machines’ operations are only successful to the extent that human subjects are capable of interacting with their semi-invisible wires by engaging their entire bodies in the process. For example, the Chief of the Department of Precrime, John Anderton, is seen to manipulate the floating digital interface using the gestures of a symphony conductor.

Furthermore, although the computers themselves may come across as partially disembodied entities, *Minority report* highlights the markedly material character of other expressions of cybertechnology: non-earthbound cars that whisk about on magnetic cushions, as well as scurrying spiderlike robots conducting thorough searches of buildings and carrying out retinal scans of their inhabitants. At the same time, the ‘action’ sequences are packed with fights, chases and shoot-outs that potently evoke the specifically physical dimension of both humans and machines.
The precogs’ own bodiliness is likewise underscored. Agatha, in particular, is explicitly portrayed as more substantial than the flow of vatted neural waves to which she has seemingly been reduced. Attention is insistently drawn to her physical vulnerability, as her muscles, weakened by inactivity and perception-enhancing drugs, barely manage to support her faltering frame.

A further element differentiates the type of brain in a vat presented in Minority report from Putnam’s model. While the latter is based on the speculative premise of a wholly programmable and hence predictable brain system, the brain in a vat type personified by the precogs retain a puzzling unpredictability factor. Indeed, central to the plot is the notion that the precogs’ anticipation of future events cannot be unproblematically trusted since, although many maintain that they ‘are never wrong’, they occasionally ‘disagree’ due to a glitch in their predictive faculties. When this happens, the vision of the dissenting precog is filed in her/his brain as a ‘minority report’. This theme is closely connected with one of the main issues that have haunted both philosophers and religious scholars throughout the ages, namely the unresolved tension between predestination and free will. Is the future glimpsed by the precogs fluid or static? A possibility or a certainty? These metaphysical questions are further complicated, in the context of the film, by their entanglement with ethical dilemmas. One of these concerns the rights of the precogs themselves: is it legitimate to keep them enslaved in order protect other people who obviously lack their capacities? A further issue concerns the rights of the potential murderers: is it defensible to arrest people who are, strictly speaking, innocent given that no crime has yet been committed at the time of their capture?

Finally, it is worth emphasizing that, although as a philosophical and scientific concept the brain in a vat ushers in a decarnalized subject predicated upon the hypothetical possibility of divorcing mental processes from the body, metaphorical manifestations of the brain in a vat in cyberpunk propose quite a different scenario. Indeed, cyberpunk’s multiple articulations of the interrelated themes of mechanized life and vitalized machinery poignantly emphasize the stubborn endurance of the corporeal dimension against insistent proclamations of the body’s obsolescence. The flesh is still very much with us and, ostensibly, here to stay.

References


**Filmography**