

## **I Am Terminal: Enter, The Cybernauts**

### Introduction

The days of true cyberpunk are over. New cyberpunk can only continue as a form of nostalgia, a memory, reliving a technologically-surpassed era that drew from a culture of objects and media that are now buried in the trash heaps and storage units of the long-gone 90s. Just as every new iteration of a technological device outdates the previous, so too has cyberpunk lost its seat as a cutting-edge genre of science fiction. However, as we shall see, cyberpunk was among the first fiction to explore the very real prospect of entering into a computer-driven virtual reality, thus pioneering the digital frontier and altering the human *mindscapes* to prepare us for the virtual reality that is now emerging.

The invention and development of technologies that allow an immersive experience of computer-simulated environments is the central focus to this text. How we receive stimulus from and interact with virtual worlds is another central theme to this text, and of particular importance is the question, *how else can we interact with computers and virtual worlds, now and in our future?* We will explore the development of *cyberspace* (a term coined by William Gibson) and its interfaces in relation to three stages of development:

- a) cyberpunk's *fantasy* of cyberspace,
- b) the current *reality* of virtual reality, and
- c) a Transhumanist perspective of humankind's *future* as cyberspace creators and explorers.

It is my intention to provide questions and prompts for emerging *cybernaut science fiction* authors and creators, and bring together a collection of information with which to draw from in our texts. This is all in the effort to present where we are today, as witnesses to the actual emergence of virtual worlds, with the hope that we all can create more interesting fiction that imaginatively moves us beyond our current technological and mental capabilities.

Quips and points will often be made without context or explanation, analogous to the experience of surfing the internet of today, which bombards us with one-liner hyperlinks designed to draw our attention into a webpage; this is done with the intention to spur a thought in the reader without the need to further explain the point. If this text sometimes feels like a lecture, then let it also be considered another literary condition of our information-driven era, harmonious with the amount of reading that is expected of us as second-generation terminal users. With this understanding, we may surpass the trap of the information itself and instead utilize our data through an artistic channel.

### Neo-Neologisms

Two terms which will be used extensively in this text are here described:

*Datascape* will refer to the unseen dimension of all digital information, regardless of its rendering and portrayal to the human user (as opposed to a *virtual world* or a *cyberspace*, which is a *rendered* virtual environment). The datascape envelops all information that is locally stored or traveling between terminals, whether it is a package of bytes or an endless stream of data. Data and the datascape can be manipulated in nearly endless ways, as will be explored throughout this text.

*Cybernaut*, similar to *astronaut*, quite literally means *an explorer or adventurer of cyberspace*; this term can refer to any user of digital technology, specifically those who use computers, surf the internet, and explore virtual reality.

**“Cybernaut science fiction will rely on a broad range of digital media expression, which includes the literary arts, but also encompasses digital painting, electronic music, and simulation design.”**

- Acea Spades Black, *I Am Terminal*

Let's begin. Power: ON

Cybernauts are the builders and inventors of virtual worlds.

Cybernauts are the enjoyers and explorers of virtual worlds.

Cybernauts are the sustainers and destroyers of virtual worlds.

### Of Cyberpunk...

**“Jameson himself has stated that cyberpunk is 'henceforth, for many of us, the supreme *literary* expression if not of postmodernism, then of late capitalism itself.'”**

- Scott Bukatman, *Terminal Identity*

Cyberpunk narratives emerged as a gross extrapolation of the breakdowns of self that occurred to the humans most affected by postmodern life, aspects of which were projected upon a fictitious near-future world, replete and engulfed by the advertising industry, pop-culture phenomenas, consumer products and electronics, and body modifications. Cyberpunk, and postmodern fiction in general, features characters who are lost in a sea of scientific and technological change; a rapidly moving world in which human identity is challenged by a loss of center, the sensation that the individual can no longer relate to old ontological beliefs in so foundational a thing as the concept of reality itself. The characters in a postmodern tale must often invent their own meaning of reality. An overpowering sense of change and helplessness, often due in equal measure to the explosive transformation of the world by technology, the changing ideas of reality due to mind-shattering scientific discovery, and the total dominance of multinational corporate entities who have gained a powerful hold on the socio-economic

systems of the Earth. In cyberpunk, the criminal underworld becomes a haven for those who wish to avoid the futility; yet, ironically, those who escape into the criminal underbelly of society often find themselves backed into a corner of their own actions and misdeeds, thus reinforcing the sensation of utter inescapability. Some look to phenomenal experiences for their identity, as the character Case does in *Neuromancer*, who becomes addicted to the experience of navigating cyberspace. Instead of introducing the electronic devices and incredible phenomenas of these worlds with a reverent awe, the cyberpunk novel often takes the new world and turns it inside-out, describing its darkness and the aspects that are riddled with corruption. Though the cyberpunk world is filled with objects and experiences that the reader may find incredible, the characters rarely find anything special about their world, and cyberspace falls in as just another feature of the technological cityscape.

**“When people are little more than bytes in the government data stream, can anyone remain human?”**

- John Brunner, *Shockwave Rider* (1975)

**“For one thing, the cyberpunks were the first generation of artists for whom the technologies of satellite dishes, video and audio players and recorders, computers and videogames (both of particular importance), digital watches, and MTV were not exoticisms, but part of a daily 'reality-matrix'.”**

- Larry McCaffery, *Storming the Reality Studio*

Today's technology has evolved way beyond the old cyberpunk motifs; video cassettes became DVDs which is now being replaced by internet streaming; audio cassettes became CDs and transformed into digital MP3s which are also being replaced by subscription streaming services. Even television, which existed in a form little-changed for decades, has given way to internet videos, far beyond the days of on-demand cable television programs. Where the technologies of the cyberpunk era were typically a tangible, analog device, the technologies of our current era are *streaming*, literally

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*streams of data* that move from server-to-client through a network, most often the internet. Even when we keep our own copy of a song or movie on our computers or cellphones, they are only copies of data that a stream has deposited into our devices. The data itself is an inaccessible layer of invisible power, understood only in its context by a computer that can make sense of the code within. Be it stored inside of a forgotten server in the bottom of a basement, or streaming rapidly across the internet and into multiple devices, the data itself in its entirety makes up the invisible dimension that we call the *datascape*. Where as Case in Gibson's tale described cyberspace as a consciously-navigable dimension of information, most of the actual datascape remains completely unseen, never intended to interact with a human. But, in the cyberpunk fantasy of cyberspace, the datascape is laid bare to the senses.

A central motif to the cyberpunk tale is the 'console cowboy', the hacker that navigates cyberspace for whatever purpose they find important, be it stealing money from online bank accounts, or collecting classified information from protected data servers. The direct connection between the human brain and the network terminal is a central device in Gibson's *Neuromancer*, and also in the action film *The Matrix*. The idea that a human can be directly connected to a computer network and navigate within a digital dimension is the heart of *cybernaut science fiction*, and cyberpunk has been instrumental in bringing forth this storytelling device.

Where as cyberspace may have been used by postmodern and cyberpunk writers as a literary device, “to construct a new subject-position to interface with the global realms of data circulation, a subject that can occupy or intersect the cyberscapes of contemporary existence”, as Bukatman described in *Terminal Identity*, cyberspace can now be used in a literal sense, as it is becoming a real technology in today's world. How it is used as a literary device is up to the author alone; whether it is just another vehicle for the story, a backdrop item in the techno-world, a region of exploration, or a tool for questioning the very nature of reality, thought, and human identity.

**“In societies where modern conditions of production prevail, all of life presents itself as an immense accumulation of *spectacles*. Everything that was directly lived has moved away into a representation.”**

- Guy Debord, *La Societe du Spectacle* (1967)

The cyberpunks envisioned the day of data terminals in our pockets and cyberspace as a navigable region; we live with these technologies as a daily reality. They, like the science fiction writers who spoke of traveling to outer space long before the first moon landing (a la *A Trip to the Moon*, 1902), had only a fantasy of the technology that their narratives bespoke. But, like the science fiction writers who followed the wake of scientific achievements that sent humankind into space, we are the generation that can enter into cyberspace; we have the datascape right here, in our own hands, and we are constantly shaping this dimension. We are the first generation that can truly call ourselves *cybernavts*.

**“Invisible spaces now dominate, as the *city* of the modernist era is replaced by the *non-place urban realm* and *outer space* is superseded by *cyberspace*.”**

— Scott Bukatman, *Terminal Identity*

### Reality, Virtual...

The 'virtual reality' technology that was developed during the late 20<sup>th</sup> century prepared us for a massive leap in functionality made possible due to exponentially increasing computational power, and, thanks to the work of Palmer Luckey and his company, *Oculus*, the head-mounted display (HMD) was brought to the consumer market in the mid-2010s. Modern HMDs utilize real-time position tracking that register user motion in a computer simulation, simultaneously updating the user's perspective to match their position in cyberspace. Additionally, the user may also use a number of peripheral devices that further immerse the senses into the experience of a virtual world. To mention just a few:

The *Virtuix Omni* allows the user a full range motion in virtual space; a harness apparatus keeps the user in place, suspended above on a smooth surface, which the feet slide upon to register motion in the simulation. Haptic feedback suits, such as the *Hardlight VR*, give the user a tactile sense of virtual space; the user experiences full-body sensations when coming into contact with digital simulacra, determined by the simulation's physics engine. The *Manus VR* gloves tracks and projects the motion of the user's hands into cyberspace with incredible precision, and also generate haptic feedback during interaction with virtual objects. To immerse the sense of sound in virtual reality, pick up a set of *OSSIC X* 3D headphones; these sync with the simulation to give the user a very detailed spatial-audio experience that vivifies distance and presence in virtual reality.

Combining these elements together, we have an experience of cyberspace that is impossibly interesting. The only senses that have not yet been virtually mastered are the taste and smell; yet, interestingly enough, the mind has the ability to fill these in on its own, owing to the synesthesia that is created by being so completely enveloped in the multi-sensory experience that virtual reality provides.

These devices are not the future of virtual reality; they are the present. These are the tools of the current generation, not the fantasies of a science fiction world. This is the beginning of the new millennium, and these technologies are offered to us on the consumer market. What does this spell for the future of cyberspace immersion and interaction? To what purpose will we use these devices; as narrative devices, as entertainment consoles, as educational tools, or beyond that?

Moving beyond the capable, which will only grow more vivid with each iteration, it is our imagination that opens the doors to new possibilities. Reaching far into the future, we can imagine the human being transformed by these technologies; the true explorer of the digital realm.

## Cybernautic Transhumanism

**“[Transhumanism] promotes an interdisciplinary approach to understanding and evaluating the opportunities for enhancing the human condition and the human organism ... The enhancement options being discussed include... augmentation of human intellectual, physical, and emotional capacities... along with other potential developments that could profoundly alter the human condition... [such as] economic, social, and institutional designs, cultural development, and psychological skills and techniques...”**

**Transhumanists view human nature as a work-in-progress”**

- Nick Bostrom, *Transhumanist Values*

**“It has fallen to science fiction to repeatedly narrate a new subject that can somehow directly interface with – and master – the cybernetic technologies of the Information Age...”**

Scott Bukatman, *Terminal Identity*

Transhumanism presents us a vehicle for discussion of the human future, for it encompasses not only changes to the human body, but also to thought, socio-economic order, cultural development, and the wonders of immense technological change. A Transhumanist must consider our future as technological beings who interact with the datascape, imagining the human developing senses of cognition and interaction with the extra-sensory stimuli of the digital dimension. The datascape is a mirror to our world because it is interconnected with it, but it also stands alone as its own, intangible space. But what makes it untouchable is the human's lack of a sense of electronics and data. Without eyes, we may not see the light, and without the *datasense*, we will not be able to touch the datascape. Computers are, in a sense, *data-sensitive beings*, able to send, receive, and alter the datascape itself. Will a human develop the *datasense*, too?



Just how far will we merge with the datascape?

How exactly does one gain the datasense?

What new capabilities will we invent as data-sensitive beings?

Our capacity to enter the digital landscape is limited to external sensory stimulation by way of the ears, eyes, and haptic pressure. We have not yet gained the ability to directly stimulate the human brain to create holistically-experienced renderings of the virtual world; but, we aren't far behind.

I had the pleasure to work with the son of a neuroscientist whose research team is currently inventing a technology that allows the blind to see by way of a camera connected to an electrically-stimulating tongue sensor; the user places the sensor on their tongue, which sends signals from the camera into their brain, displaying a visible signal. Another technology for the blind involves installing a camera by wires directly into the user's visual cortex, an invasive yet steadily improving technology. If this technology were to be used to render images or simulations from a computer directly into the user's brain, the user could be completely immersed in the datascape in currently-unfathomed ways.

**“Transhumanists hope that by responsible use of science, technology and other rational means we shall eventually manage to become posthuman, beings with vastly greater capacities than present human beings have.”**

– Bostrom, *Transhumanist Values*

### The Song of The Terminal

**“The newly proliferating electronic technologies of the Information Age are invisible,  
circulating outside of the human experience of space and time.”**

- Bukatman, *Terminal Identity*

To envision a future in which human has merged with the datascape, we as authors must be willing to draw from the real field of computer science. Whether or not we adopt the practice of writing

our narratives as *hard science fiction*, in which our devices are constructed ingeniously from an understanding of the actual working of a computer, we must at least take into account that the general computer literacy among readers has significantly increased in the new millennium. Long gone are the days that we can get away with an uneducated use of computer technology, typing in a few one-word commands and expecting the computer to know exactly what we mean, or throwing around words like *algorithm* and *CPU* like they're magic. Well, a computer isn't magic, and neither is science, so why do so many authors describe their advanced technologies like all-powerful objects of miracles and mysticism?

If we are going to author *cybernaut science fiction*, then we must at least have a basic understanding of how a computer works and, most importantly, how it renders the datascape into a human-accessible form. From there, we can begin to consider what other ways the datascape can be rendered for human interaction.

With the exception of the virtual reality technologies mentioned, we currently access the digital dimension almost exclusively by way of a computer; i.e. a terminal. There is a screen which displays data that has been rendered into a visible form, be it a line of symbols, or a colorful, navigable environment. By way of peripherals, such as a keyboard and mouse, we access and manipulate data that displayed to us, and this data is either is stored in the computer, or is streaming into it and out of it through a network like the internet. Data itself is just a code, a series of electronic switches that are grouped together to form bytes. The computer itself is designed to manipulate these switches and bytes. Computer languages use these switches as their foundation; their letters, if you will. There are nearly endless ways that a computer can read these switches; they are the foundation of *computer languages*. Data itself is just information, stored in bytes, waiting to be interpreted by the right language. Language is our primary interface with machines, albeit a strange language. We can then venture to say that the datascape itself is a region of language, acting as an intermediary between human-and-machine, and

machine-to-machine.

Information overload, terminated.

### Beyond the Terminal

Here's a question for you to ponder: if a computer is made up of tiny switches that make a code, and components that can move and alter these switches, just how the heck do you think your conscious mind is going to get stuck inside that hard drive? Discuss and hypothesize.

We can begin to imagine incredible new ways in which the human being will interact with data, and thus new ways in which the human will interact with the machine. Cyberpunk and Transhumanism has explored the idea of human physically or mentally merging with a machine, beyond the use of screens as the exclusive intermediary. Direct control of a machine by way of telepathy and brainwaves or mental impulses may or may not hinge upon a data-language, instead instituting direct synaptic control over the machine. A human with the datasense could, theoretically, think and emit pure data. But can we also envision a computer that works without data?

There is a very imaginative story which illustrates an example of humans merging with machines; in *The Ship Who Sang* by Anna McCaffery, a newborn human baby is selected to become the operator of a space-traveling scout ship. She spends her life in training, slowly becoming fused with the technologies that allow her to control the mechanisms of the ship:

“Instead of kicking feet, Helva's neural responses started her wheels; instead of grabbing with hands, she manipulated mechanical extensions. As she matured, more and more neural synapses would be adjusted to operate other mechanisms that went into the maintenance and running of a space ship.”

Helva's physical actions are completely merged with machinery. There is no intermediate terminal, no screens to read or knobs to turn; Helva *is* the computer terminal.

Another interesting example can be found in *Plus* by Joseph McElroy (1976); described in

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*Cyberpunk 101*: “A dying engineer who has his brain removed awakens to find he has become, literally, a mere communication device, attached to a computer inside a satellite orbiting the earth. As 'he' (Imp Plus) gradually recovers his memories and reinvents language, he transforms himself into a fully conscious biological and chemical laboratory.”

In the science fiction epic, *The Matrix*, humans are grown in fusion with machinery; their psyches are projected into a virtual dimension where dwells their persona while they are *jacked-in*, or physically-connected to the illusion-generating machine. In the story, humans live their entire lives unaware that they are trapped inside of a virtual simulation, but those who awaken from the simulation are thrust into 'the real world', which is a horrific place that is completely twisted into a terror-scape of Giger-ian machine dominance; the awakened are collected by the other freed humans and are taught how to master their virtual presence; by having programs downloaded into their brains, they gain amazing powers in the virtual world.

How else will humans interface with virtual reality?

**“No longer has information any tangible, kinetic analogue in the world of the senses, or in the imaginations of writers of fiction. Gone are the great arrays of vacuum tubes, the thousands of toggles that heroes of space fiction would flick *almost* faster than the eye could see as they dodges space 'torpedoes', outflanked alien 'battle lines', steered through asteroid 'storms'; gone, more importantly, is any sustained sense of the autonomy, in space and time, of gross visible individual human actions. And if 'actions' are now invisible, then our fates are likewise beyond our grasp. We no longer feel that we penetrate the future; futures penetrate us.”**

– John Clute

## Epics of the Cybernauts

**“Anthropologists of possible selves, we are technicians of realizable futures.”**

– Donna Haraway

Star travel; alien planets; apocalypse; utopia; the mundane and the incredible; in the dimension of simulacra, we can create anything.

It is tempting to launch into a detailed survey of simulations and virtual worlds that are currently available to the interested reader; but, this is out of the scope of this text. Suffice it to say, entire galaxies have been generated in cyberspace and await your exploration. This leads to the all-important question: how will you use these technologies in your work? Will you write a story, or design a story for expression in a virtual environment? Entire manifestos could be generated with the do's and don'ts of cybernaut science fiction tales (and I expect to read them, someday). Not only must virtual reality be used as a simulation of reality, but it can also be used as a simulation of hyper-reality, sub-reality, pseudo-reality, and even non-reality. Let us hope for *The Virtual Non-Reality Manifesto* to emerge soon after this text is complete.

We must chart course in the *mindscape* before we can create new ground in the datascape. We as authors and creators are best suited for such advances in thought and invention, since we are already so often dwelling in our own minds.

Focus not only on human interactions with virtual reality; invent new personifications for those who dwell exclusively in the datascape.

We can use these technologies to simulate potential futures, the possibilities awaiting our actions, globally and individually, to determine the best course ahead.

Helva, in *The Ship Who Sang*, is educated from youth in the subjects of “trajectory, propulsion techniques, computation, logistics, mental hygiene, basic alien psychology, philology, space history,

law, traffic, codes: all the etceteras that eventually became compounded into a reasoning, logical, informed citizen”. Her education is shaped by her function, her duty, and enhance her abilities as the operator of a scout ships in an intergalactic future. If we are born with the ability to interact with the datascape, what education would we be given to enhance our abilities as *cybernauts*? What would the world of the future look like in which the population (or a select few) can enter the datascape, and what would they be taught?

The field of *cybography* is waiting to be invented.

When physical laws can be rewritten by the changing of a few values hidden in the fabric of the digital universe... Hmm...

The human creative impulse is engulfing the datascape. Digital art is on the rise and new forms of it are taking shape in the data cosmos.

How will our interactions with virtual reality and the datascape change us as individuals; as a society? What place will virtual reality have in human life? Will it be only an entertainment device; a social playground; a space for political discussion; an area of discovery? Will we send ships into space, covered in cameras and scientific devices, yet control them from the comfort of our own homes? What will we see in our deeper explorations of the virtual dimension? Will we need to create everything, or will an artificial intelligence create these worlds for us? Will there be paranormal experiences not originally intended, such as solar activity that causes unexpected phantasmagoria?

### In Conclusion

We, the cybernauts, venture into the datascape with the intention of shaping this creation to our will, for the purpose of creating epic narratives, and to enhance the joy of our techie-lives. We may be a far-cry away from *jacking-in* to the datascape, like the characters in *The Matrix* and *Neuromancer*, though we can currently interact with virtual worlds in incredible ways. We can't directly transform

matter into something digital, as the Master Control Program does to Flynn in *TRON*, but we do have the ability to produce tangible simulacra in virtual reality from physical objects in the real world, which is certainly the better option (I'm sure you can agree). We may not escape our daily lives by immersing deeply in the digital dimension, as do the characters of *Ready, Player One*, though that possibility is coming closer every day, for better or for worse. The cyberpunks of yesteryear had only a fantasy of the technology that the cybernauts utilize daily. What will we do with this technology, how will this technology transform humanity, and what devices will the next generation use that we today can only imagine?

### Sources

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