

# The Post-Dystopian Technorealism of Ted Chiang

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**Abstract:** In this article, we argue that Ted Chiang's short stories offer a realist philosophy of technology, one that charts a third course between the techno-pessimism and techno-optimism that characterize the history of philosophizing about technology and much of the speculative fiction about it. We begin by surveying the history of utopian and skeptical approaches to technology in philosophy and speculative fiction. We then move to discuss two of Chiang's recent stories and use them to articulate the author's techno-realism. Chiang's view, as it is developed in these stories, has three features: First, technology is not merely an agent of de-skilling, it can also promote self-knowledge and insight. Second, technology is not only an agent of alienation it can also provide succor and psychological relief. Finally, technology does not necessarily remake us into new beings with new capacities and needs. In many cases, it just gives us further avenues to be what we already were - to act on the tendencies and pursue the needs we always had.

**Keywords:** science fiction; technorealism; utopia; Luddism

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## 1. Introduction

For four hundred years our attitudes towards technology have been shaped by a debate between utopians and optimists on one side, and pessimists and Luddites on the other. Optimists have ranged from the 17th century Renee Descartes, who argued that science will ultimately allow us to become the “masters and possessors of nature” and help us triumph over most social and physical ills and even death itself, to the nineteenth century JS Mill who argued that all our problems can be fixed with technological expertise and intelligent public policy. Pessimist views spanned from religious and political conservatives, offended by heliocentrism or the theory of evolution, to *philosophes* like Rousseau who argued that technological progress always involves more human and social regress than the progress is worth.

This debate about technology has also been reflected in speculative fiction. From the earliest utopias through contemporary science fiction, speculative fiction has explored both the best and worst possible

technological futures (Sibley, 1973). It is as philosophers of technology that we were struck, then, by the subtlety of the approach to technology in the work of science fiction author Ted Chiang. In his work we found an extraordinary capacity to grapple with both the promising and threatening possibilities of technology in the same thought, or within the same story. This view, which we label technorealism goes a step beyond saying that “technology is a neutral tool.” Chiang acknowledges that technology has unintended side effects, but unlike the technopessimists, he does not see all those impacts as negative. His view is neither exuberant nor depressed about the potential of technology but is articulately sober. We focus on two stories in particular: “Anxiety is the Dizziness of Freedom” and “The Truth of Fact the Truth of Feeling” as examples of this technorealist position.

## 2. The Dialectic of Techno-Optimism and Techno-Pessimism Since the Renaissance

When we sketch out the connections between philosophical ideas and a subgenre of popular culture - speculative fiction in this case - we should avoid crude oversimplification. Neither philosophers nor writers of speculative fiction have ever been representative of the people of their time and place. Philosophical movements may be reflected in mass political movements, and speculative fiction is sometimes extremely popular, but there are always multiple philosophical trends among both elites and the masses, multiple ideological themes reflected in the many genres of popular culture, and many contemporaneous counter-examples to any broad generalizations. In reality the *Zeitgeist* is fractal.

With that caveat, and with the understanding that any overview must be selective, let us survey some of the parallel and mutually influential discussions about the nature of technological progress in philosophy and literature. A commonplace to start is Sir Francis Bacon’s *New Atlantis* (Bacon, 1626). As in Sir Thomas More’s *Utopia* (More, 1486), written more than a century earlier, *New Atlantis* describes an island nation, Bensalem, visited by a European. Bacon was a proponent of scientific empiricism and he depicts Bensalem as a society devoted to scientific investigation. “The aim of our society is to achieve... knowledge about the causes and the secret movements of all things and the extension of the limits of human power over things as much as possible” (Bacon, 1626). Experiments and analyses are conducted in a state-sponsored Academy of Sciences, and agents are sent around the world to collect technologies and scientific knowledge. Bensalem’s devotion to scientific empiricism and technological mastery is depicted as supporting both their affluence and their high moral character.

The Enlightenment *philosophes* of the seventeenth and eighteenth centuries generally promoted our capacity to use reason to understand the world and to invent technologies to master it. They foretold labor-saving devices and wove together social reforms and technological advancements

into a new narrative of progress that would eventually free us from toil, and conquer disease and even death. These philosophers both reflected and shaped a broader enthusiasm for social and technological change among the emerging middle classes.

For instance, a decade after *New Atlantis*, in his semi-autobiographical 1637 *Discourse on Method*, Renee Descartes would say that, after studying other disciplines, mathematics and physics convinced him that it

is possible to arrive at knowledge that would be very useful in life and that, in place of that speculative philosophy taught in the schools, it is possible to find a practical philosophy, by means of which, knowing the force and the actions of fire, water, air, the stars, the heavens, and all the other bodies that surround us, just as distinctly as we know the various skills of our craftsmen, we might be able, in the same way, to use them for all the purposes for which they are appropriate, and thus render ourselves, as it were, masters and possessors of nature. (Descartes, 1637)

Once we did master nature by means of the sciences we could rid ourselves “of an infinity of maladies, as much of the body as of the mind, and even perhaps also the frailty of old age” (Descartes, 1637).

Likewise, we see unbridled techno-optimism in the work of French mathematician and revolutionary Marquis de Condorcet, who believed systematic rationality would not only conquer kings and the Church, and liberate women and slaves, but also conquer death and toil through science. Some 19th-century utopian socialists, such as Henri de Saint-Simon and his student Auguste Comte, proposed not only that technology would be liberatory but that science would take the place of religion as the foundation of society.

A similarly confident sentiment was echoed in John Stuart Mill’s seminal 19th Century work *Utilitarianism* (Mill, 1863). Social and physical problems, Mill argued, are not decrees of fate but failures to apply ourselves rationally and consistently.

Most of the great positive evils of the world are in themselves removable, and will if human affairs continue to improve, be in the end reduced within narrow limits. Poverty, in any sense implying suffering, may be completely extinguished by the wisdom of society, combined with the good sense and providence of individuals. Even that most intractable of enemies, disease, may be indefinitely reduced in dimensions by good physical and moral education, and proper control of noxious influences; while the progress of science holds out a promise for the future of still more direct conquests over this detestable foe. And every advance in that direction relieves us from some, not only of the chances which cut short our own lives, but, what concerns us still more, which deprive us of those in whom our happiness is wrapt up. (Mill, 1863)

Responding to these Enlightenment themes of a new, better world achieved through science and reason the conservative and religious opponents of the Enlightenment decried that the future the *philosophes* wanted would be Godless and immoral. But while religious resistance to science and technology is still common today, the greater challenge came from secular techno-skeptics, some from within Enlightenment's house such as Jean Jacques Rousseau. Rousseau argued that technological progress always involves more human and social regress than the progress is worth - regress in our own physical abilities which can become atrophied by technology but also regress in our empathetic and moral abilities which are blunted as a result of the march of technical rationality. Rejection of the Promethean techno-optimism from within the Enlightenment camp can also be found in literature, starting with Mary Shelley's 1818 *Frankenstein* (Shelley, 1818). But the techno-optimistic utopian narrative was still more popular until the twentieth century.

The end of the 19th century is perhaps the beginning of a transition from simplistic techno-optimism in philosophy and speculative fiction. For instance, horrified by Edward Bellamy's influential vision of a technologically mediated utopian society in *Looking Backward* (Bellamy, 1888), the British socialist William Morris wrote *News from Nowhere* (Morris, 1891), which depicted a more pastoral ideal society. In Morris' view, a socialist society would free humanity from the tyranny of technology. In an 1884 lecture, he opined "It is the allowing of machines to be our masters and not our servants that so injures the beauty of life nowadays" (Morris, 1884).

H.G. Wells represents the beginning of a turn away from the utopian form in speculative fiction - a rejection grounded in both ideological and literary reasons. Socialists like Wells were able to express their ideas without the contrivance of the utopian form, which was in any case not very engaging for modern readers. While Wells' work still reflected his hopes for a technocratic, socialist future, as in *A Modern Utopia* (Wells, 1905) and *Men Like Gods* (Wells, 1923), Wells also began to depict the dystopian possibilities of technology, from the evolution of humanity into bestial and infantile subspecies in *The Time Machine* (Wells, 1895) to the prospect of weapons of mass destruction in *The Shape of Things to Come* (Wells, 1933).

Throughout the twentieth century, speculative fiction grew increasingly pessimistic. E.M. Forster's novella *The Machine Stops* (Forster, 1909) reads as a shockingly prescient prediction of a world managed by The Machine, in which all social relationships are mediated by electronic communication and we are all locked in our apartments alienated from nature. Aldous Huxley's 1932 *Brave New World* (Huxley, 2004) was a rebuke to the socialist and techno-utopian speculations of peers like J.B.S. Haldane and Bertrand Russell. *Brave New World* is set in a society where happiness is guaranteed by drugs, free sex, and the eugenic engineering of a rigid

class system. *Brave New World* was so influential a work that it became shorthand for the humanistic Rousseauian argument that technological progress will be spiritually degrading.

In the mid-twentieth century, after the shocking carnage of technological warfare in both World Wars and the disillusionment with Soviet socialism, the rejection of soulless technology was also expressed from many quarters in philosophy. Both Martin Heidegger and Carl Schmidt, for example, argued that technology encourages us to experience everything we encounter as being potentially useful to us rather than as objects of awe and that all personal, social and business problems are subject to technical, neutral fixes or “solutions.” Schmitt called this tendency to think in terms of solutions “technicity” (Schmitt, 1993).

Both literary and philosophical techno-skepticism grew in the 1960s in response to The Bomb, ecological concerns, post-modernism, and the pastoralist romanticism of youth culture. *Brave New World* and George Orwell’s *1984* (Orwell, 1949) became assigned reading in high schools and introduced household terms for dystopia, authoritarianism, and ubiquitous surveillance. *Fahrenheit 451* by Ray Bradbury (Bradbury, 1962) depicted a dystopian decline of free thought under the influence of electronic media, Anthony Burgess’s *A Clockwork Orange* (Burgess, 1962) portrayed the use of behavioral modification in criminal reform as akin to the psychiatric rehabilitation of dissidents in the Soviet Union.

Radical feminist fiction offered another attempt at utopias, societies beyond patriarchy or even gender, as in Ursula K. Le Guin’s *Left Hand of Darkness* (Le Guin, 1969) or Marge Piercy’s *Woman on the Edge of Time* (Piercy, 1976). The Reagan era soon made the feminist imagination more dystopian, as in Margaret Atwood’s *The Handmaid’s Tale* (Atwood, 1985), the imagery of which has been adopted today as the signifier of patriarchal theocracy.

In the 1980s the cyberpunks made the critical turn in speculative fiction more ideological, directly attacking the Golden Age techno-utopianism as fascist, and portraying a future dominated by dangerous artificial intelligence and biohacking used by rival corporations that had supplanted governments. Since the 1990s the Millennials and Gen Z were drawn to and shaped by dystopian and post-apocalyptic narratives that reflected their growing economic, political and ecological pessimism. Many stories, such as Suzanne Collins’ *The Hunger Games* (Collins, 2008) and Veronica Roth’s *Divergent* series, implied modern life was a pointless reality show, entertaining to the rich and deadly for the rest.

This dystopian mood is also largely reflected in contemporary philosophical writing about the impacts of technology on the future. A frequent concern from liberal-left anglophone philosophers and social thinkers has to do with how new technologies tend to exacerbate existing social inequalities - whether because it’s the rich who have easier access to them or because the software the technologies run on embodies the socio-

economic biases of the ruling class (see e.g. Eubanks, 2018; Noble, 2018; O'Neil, 2016). Thus, for example, philosophical writings about germline genetic engineering worry genetic enhancements will further exacerbate class divisions, and “algorithmic biases” of applications from face recognition to loan approval will reinforce racial and gender biases.

New technologies are attacked by both right and left for undermining privacy and civil rights, and ushering in what Shoshana Zuboff has called “surveillance capitalism” (Zuboff, 2019). Under this new social order, technology users are turned from customers into raw materials that tech giants like Google and Facebook use in an ever-expanding market of behavioral futures. This market depends on users’ data being collected and parsed to both predict and influence what they are likely to consume. Both political conservatives and progressives worry that our growing reliance on technology erodes basic technological and even psychological abilities (see e.g. Danaher, 2019; Frischmann & Selinger, 2019; Sandel, 2007; Vallor, 2016) from how to spot fake news to how to talk to people face-to-face.

In the twenty-first century, this dystopian turn has been lamented in both philosophy and speculative fiction. Some philosophers associated with transhumanism, like Oxford’s Nick Bostrom and co-author James Hughes, have argued for a broadly optimistic approach to technologies. On the other hand, while the broader transhumanist subculture does have a utopian aspect, seen in the enthusiasm for “sea-steading” and Mars colonization, few transhumanists are utopian in the sense of proposing plausibly ideal high-tech societies, and most acknowledge the possibility of existential risks from technologies such as superintelligent robots.

Some speculative fiction writers, such as Cory Doctorow, Alastair Reynolds, Kim Stanley Robinson, and Iain M. Banks, have attempted to introduce more optimistic narratives into speculative fiction. All have near-utopian societies in their fiction that still struggle with internal and external issues, and depend on technologies that do not always work as intended. These writers point towards a synthesis of utopian technological optimism with dystopian pessimism, for an audience that can no longer be entertained by simpler monochromatic futures. It is this tendency that Chiang articulates more clearly than most contemporary speculative fiction writers; it is this ability to synthesize and present a narrative tension that does not make technology either hero or villain that makes him a leading proponent of techno-realism.

### 3. Ted Chiang

What the philosophical debate around the role of technology in our lives is largely missing is a well-articulated technorealist view, a third way, as it were, that is neither exuberant nor depressed about the potential of technology but is articulately sober. Science-fiction writer Ted Chiang offers us just such a technorealist account in his stories. Unusually for a science fiction writer of his stature, Chiang has published sparingly and all

in the short story form, collected in his *Stories of Your Life and Others* (Chiang, 2002) and *Exhalation* (Chiang, 2008). His work has been recognized with both a Nebula award, voted on by fellow writers, and a Hugo, awarded by the reading community.

His economical approach has paid off in the amount of philosophical depth in his work, and his short stories have been acclaimed as among the most philosophically sophisticated in contemporary speculative fiction:

The impetus for a story will often be a potent philosophical question — free will versus determinism, the purpose and meaning of life, the relationship between memory and truth, the essence of one's personality — but their denouement hinges on quiet moments of human illumination or connection. His work offers glimpses of a possible future wrought by technology, but more importantly, it interrogates who we may become in this future as technology changes the patterns of daily life. (Vint, 2019)

As Chiang observed “I do want there to be a depth of human feeling in my work, but that's not my primary goal as a writer...My primary goal has to do with engaging in philosophical questions and thought experiments, trying to work out the consequences of certain ideas” (Rothman, 2017). When he explores the negative impacts of technology it is not from a conservative stance, but with the intent of helping adapt to an ever-changing future.

(Chiang writes:) Traditional ‘good vs. evil’ stories follow a certain pattern: the world starts as a good place, evil intrudes, good defeats evil, and the world goes back to being a good place. These stories are all about restoring the status quo, so they are implicitly conservative. Real science fiction stories follow a different pattern: the world starts out as a familiar place, a new discovery or invention disrupts everything, and the world is forever changed. These stories show the status quo being overturned, so they are implicitly progressive...while some dystopian stories suggest that doom is unavoidable, other ones are intended as cautionary tales, which implies we can do something to avoid the undesirable outcome. (Marcus, 2020)

One reason Chiang has a more nuanced view of technology is that he sees many technological anxieties as a sublimation of anxieties about capitalism. As Chiang told Ezra Klein in 2021:

Most of our fears or anxieties about technology are best understood as fears or anxiety about how capitalism will use technology against us. And technology and capitalism have been so closely intertwined that it's hard to distinguish the two...How much would we fear any technology, whether A.I. or some other technology, how much would you fear it if we lived in a world

that was a lot like Denmark...I'd like us to be able to separate an evaluation of the merits and drawbacks of technology from the framework of capitalism. (Klein, 2021)

We believe a careful reading of Chiang's stories yields a coherent and compelling technorealist philosophical position. Chiang's work suggests a third way between the Cartesian hyper-optimism which views technology as the means for realizing a utopian society where there is no more poverty, suffering, and disease, and a Rousseauian pessimism preoccupied with loss, obsessed with all that technology takes away from us: the physical and cognitive skills it atrophies, the forms of life it makes obsolete, the social connections it threatens.

Chiang's narrative strategy for articulating this third way is similar across many of his works: the stories often begin with a dark view of technology but that darkness lifts as the plot develops and a technology's salutary effects come into focus. In particular, Chiang tends to work with two technorealist themes: first, technology is not merely a source of loss (of skills, of meaning, of ways of life) but also a context for moral and psychological regeneration, a means for keeping ourselves more honest and a tool for better understanding ourselves and the world we operate in. The second theme is that technology does not fundamentally change human nature. Basic human tendencies, and in particular moral tendencies, both precede and survive our inventions. For Chiang, technological change provides an avenue for expressing what we already were; it does not create new moral leanings – salutary or otherwise.

We focus on two stories in particular "Anxiety is the Dizziness of Freedom" and "The Truth of Fact the Truth of Feeling" to articulate the elements of that position.

#### **4. The Truth of Fact, The Truth of Feeling**

"The Truth of Fact, The Truth of Feeling" follows two parallel stories: in the first, a journalist writes about Remem, a new technology that allows total video recall of past episodes in one's life. In the second, Jijingi, a young member of a tribal community, learns how to read and write and we see how this new technology comes into tension with the tribe's oral traditions. The novella opens with a powerful portrayal of the costs of technology. Complete remembering, of the kind that Remem promises, is a form of psychological torture: it does not give us respite from thinking about the past, it undoes our relationships because it facilitates recriminations and endless revisiting of old arguments, it undermines the narrative nature of identity (because crating our own stories depends on the murkiness of the past – a murkiness that Remem has now 'solved'). Couples can score points on each other about last month's argument, honeymoons and favorite childhood memories can be relieved in HD and are deprived of the hazy



glow of nostalgia. Similarly, writing undermines the spontaneity, flexibility, and drama of oral storytelling, it replaces living traditions with disjointed, awkward artifice. It introduces suspicion as more of us begin to “believe paper rather than people.”

Yet, as the story develops, the journalist discovers, after he starts using Remem, that his understanding of his character is deeply flawed. It turns out that his relationship with his daughter is based on a self-serving falsehood. That a key episode in their history happened exactly in the opposite way from what he, the father, remembered. What happened, now revealed by Remem, paints him as a deficient father and the daughter as far more generous and forgiving than he assumed. The discovery induces a sense of humility in the journalist and motivates him to do better for his daughter.

This depiction of a future of “lifelogging,” where we have recordings of every moment of our life accessible, can be contrasted with the more dystopian depiction in the 2011 episode “The Entire History of You” from the Black Mirror television series. In this story having access to every argument destroys a marriage because the recordings allow the protagonist to discover his wife’s infidelity, without any humbling, redemptive discoveries of one’s failings and biases that Chiang suggests the technology would also allow.

The introduction of writing in the second narrative follows a similarly ambivalent arc: initially a clear threat to the oral traditions of Jijingi’s tribe, it allows him to understand how language works; it lets him see the “bone structure” under the smooth skin of story-telling and helps him realize that he “has always been thinking in words without even knowing it.” Writing also lets him organize his thoughts more clearly, paying attention to arguments and their force in addition to modes of delivery.

Writing, too, is a technology, Chiang reminds us, one that transformed human cultures in myriad ways — from our capacity to transmit knowledge and hence to add to it, to the ways that our thoughts are expressed in language, to even what distinct trajectories our thoughts traverse. The shift from oral to literate cultures enacted profound changes in social structures and relationships, even in human consciousness. (Vint, 2019)

Finally, for Chiang technological developments do not only teach us new things about ourselves. They also, perhaps even primarily, supply us with ways for expressing who we always were. Innovations that initially seem to challenge what it means to be human, which, at first glance, introduce detrimental changes into our very constitution, turn out to simply provide further avenues for people to be themselves. Our basic moral tendencies, Chiang suggests, are not transformed by technology but merely expressed by it. Remem and its absolute recall capabilities will not

destroy marriages. It will provide those who are prone to score-settling one more context to settle scores, just as it will provide those prone to self-improvement one more context to do that. Similarly, Dejingi did not become analytical and inquisitive just because he learned to read and realized that communication can be understood as a series of discrete words and sentences. Rather, he was drawn to learn writing in the first place because he was curious and the new technology gave him one more context for realizing those tendencies.

## 5. Anxiety is the Dizziness of Freedom

The novella “Anxiety is the Dizziness of Freedom” describes a world in which advances in quantum mechanics have made communications between parallel universes possible. Using special prisms people can talk to parallel versions of themselves and find closure on nagging questions about how their lives would have turned out if they acted differently at a specific juncture – chosen one profession over another, married a different partner, and so on.

At first glance, the consequences are awful. The technology seems to herald a terrible existential crisis – after all, why do anything if we can be privy to an endless array of potential outcomes? The dizzying array of possible lives generates anxiety and paralysis, as the title borrowed from Kierkegaard suggests. The existential anxieties of the multiverse can be read as a comment on the existential burden of freedom in the modern world, reflected in many multiverse narratives. For instance in *Rick and Morty* the corpses of the protagonists’ alternate reality selves are buried in the backyard, representing their existentially disorienting ability to easily step into a universe in which they just died. For 86 episodes of the TV show *Sliders* (1995-2000) the unwilling protagonists were thrust into multiple realities trying to find their way home.

As in “The Truth of Fact, The Truth of Feeling,” however, for Chiang this seemingly pernicious multiverse technology teaches important lessons. It turns out that the consequence of applying quantum technology to our everyday lives is that at each decision point, at each moment of choice, what we elect to do will impact an infinite number of future universes. The effect on the protagonist is the opposite of the nihilism we initially fear. Instead, access to parallel worlds makes moral choice meaningful on a vast scale – a kind of quantum virtue ethics. Being good, and doing the right thing, has enormous consequences. Rather than the loss of responsibility we assume the technology implies, Chiang gives us its amplification.

Further, the technology can even provide succor and consolation. By the end of “Anxiety,” Nat, the protagonist, has made a great deal of money from an intricate ruse allowing a grieving widower to communicate with his spouse (who survives in a parallel world). Nat uses the money to obtain prisms that bring peace of mind to Dana, a therapist tortured by a past

incident wherein she (Dana) betrayed a friend. Dana thinks that her betrayal led the friend down a terrible path that resulted in prison and dysfunction. Nat provides Dana with video from a variety of parallel universes in which the betrayal didn't take place and yet the friend's troubles still followed. Dana is thus unburdened from some of the unbearable guilt she had been carrying around.

And in this story, just as in "The Truth of Fact," technological innovation is an outlet for preexisting tendencies rather than an agent of psychological change. In a twist both ominous and comical, Morrow, the scheming manager of a shop that rents out prisms, uses the quantum gadget to create a multi-dimensional hustle in collaboration with his para-self. As in the case of Jijingi, who was drawn to writing because he was curious rather than being made curious by it, Morrow found in the technology one more way to be devious. The prism did not entrap him or take him over the edge. Technology does not usually do that in Chiang's world. It rather just expands the ways we can do what we were already inclined to.

## **Conclusion**

Ted Chiang is an exemplar of what we hope is a growing trend in both speculative fiction and in the philosophy of technology, in which our future is imagined beyond the binaries of techno-optimism and techno-pessimism. We have described this position as technorealism. But why does it matter to have a moderate or realist voice in our current conversation about technology? What, in other words, is the significance of Chiang's well-articulated ambivalence about technology, and why is it needed in discussions of technology policy?

Chiang's contribution matters because we are still currently hostage to this dichotomous way of thinking about technology. Either we sink into dark techno-pessimism or buy into the over-caffeinated, hyperbolically optimistic visions of Silicon Valley wherein new tech must disrupt old ways of doing things and solve all problems. The pessimistic view has now crossed the political divide and is perhaps the only cultural commitment that the left and right share, though for very different reasons. The Left is hostile to technology because it is the product of patriarchy and racial capitalism, controlling our behavior through "surveillance capitalism" in which we are nothing but raw materials in a behavioral futures market run by Facebook and Google. For many on the Left technological innovation will only entrench and exacerbate existing inequities. On the Right, we are told that human nature itself is at great risk from new technologies, that new technologies undermine our ability to take responsibility for our own choices, to use our own judgments, and that they threaten basic attributes like our capacity to experience reverence for nature or respect for our elders.

It's hard to escape the conclusion that both the left and the right are making a caricature of the future. While our inventions can sometimes come with a terrible price tag it is worth focusing our efforts on reducing that price rather than undermining inventiveness itself. Few contemporary progressives still regard technological progress as an ally, a tool for bringing about social improvement, for leveling the playing field between classes, races, and sexes. Conservatives, on the other hand, do not consider that technology can be a tool for teaching virtue, for expanding rather than contracting personal responsibility, or for illustrating that some features of human nature are, indeed, immutable under all technological conditions.

When W.H. Auden was asked, in 1969, to compose a celebratory poem to mark the Apollo 1 mission to the moon he demurred. The landing didn't really matter, he objected. It didn't mean anything, or at least it didn't mean anything good. Instead, he wrote the famously grumpy "Moon Landing":

I once rode through a desert  
and was not charmed: give me a watered  
lively garden, remote from blatherers  
about the New, the von Brauns and their ilk, where  
on August mornings I can count the morning  
glories where to die has a meaning,  
and no engine can shift my perspective  
(Auden, 1969)

We are much better at inventing than at figuring out the consequences of our inventions, he insisted. "Adroiter with objects than with lives." Watching images from the recent Billionaire Space race, complete with Jeff Bezos and Richard Branson frolicking in zero gravity, one must concede that Auden, despite his grumpiness, had a point. But what does one do with his insight - that we are more adroit with objects than lives? Do we stop inventing things because they could herald bad news? Bring out the worst in us? Chiang seems to provide one very interesting answer to the question. What we do is imagine, in convincing detail, what a future that incorporates those inventions would look like. What we do is construct, with care, the world into which undreamed-of technologies are incorporated. And construct it not as a cautionary tale or as a utopia but as a way of life. Then, once we can read about convincing characters using these technologies and relying on them in the same ways we use and rely on our cars and phones, we can take the future seriously. We can get a plausible glimpse of what it might mean to live with these technologies and figure out for ourselves whether the benefits are worth the costs.

We have tried to argue that Chiang's stories and the tortured ambivalence they convey have important lessons to teach us about the role

of technology in our lives - about how the excess and harm they seem to embody can obscure important salutary features, hiding a meaningful silver lining. In Chiang's world, our inventions don't just change us for the worse, they don't just give us new ways of hurting each other, they don't just provide capitalists with new opportunities for maximizing profit at our expense. Technology can also provide us with new contexts for learning about ourselves, for morally improving, for taking more responsibility, and for practicing the same kind of virtues and vices we already had. Chiang's technorealism teaches us to distinguish between anxieties that come from the excesses of capitalism and those that originate in the very nature of technology. While the former is largely justified they are not conceptually tied to innovation and may even be ameliorated by it.

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