

The Wrath of Gaia vs. the Second Coming of Science: Beyond *Interstellar*'s Dualistic Narrative

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Introduction

This essay was inspired by the possibility that futures studies methods, theories and frameworks could shed some light on science fiction, in particular contemporary science fiction cinema – to act as a window into contemporary culture. Much is written about our future from the vantage point of futures studies, from literature on megatrends to scenarios of the near and long term future. And still more is written about science fiction genre, which arguably grapples most with complex issues and social and technological transformation. And yet still more is narrated and imagined by science fiction about our futures – from space operas, to robotic soap dramas, dystopian noir, cautionary allegory, and psychohistory. But what is written about science fiction from the vantage point of futures studies? Could futures studies be used to shed light on science fiction, to interpret science fiction and derive insights about ourselves?

My interest is in a proposition. That contemporary filmic science fiction may tell us more about ourselves than the future *per se*. And by extension, the proposition that popular filmic science fiction is as much or even more about our collective unconscious, rather than the actual future. This is not a new idea. Many have commented on science fiction's role in addressing contemporary issues (Nandy in Ramos, 2005, p.434). The novelty this essay attempts to engage in, is in using futures studies methods, theories and frameworks as the conceptual leverage to do this kind of interpretive work. In the case of this essay, futures studies approaches are applied toward understanding the film *Interstellar* (2014).

Interstellar was a Hollywood blockbuster written by brothers Jonathan and Christopher Nolan and directed by Christopher Nolan. In it Earth is being ravished by dust storms and a food blight, which has caused global famines and a shrinking population. The underlying premise of the film is that humanity's place on the planet is either in jeopardy or ending. As chief NASA scientist Dr. John Brand (Michael Caine) argues, the last humans on Earth will suffocate before they starve, as the blight organisms will eventually change the nature of the atmosphere – humans must find a new home on another planet in the universe. It happens that a wormhole has seemingly opened near the Saturnian orbital trajectory, one that will allow ships to explore an entirely different galaxy in the search for a suitably habitable planet. It is therefore up to a small group of NASA scientists and astronauts to save the day, travel through the wormhole and

find it. Beautifully shot and with a masterful soundtrack, the film has an epic quality reminiscent of Kubrik's *2001 A Space Odyssey*.

This essay applies a handful of futures studies theories and frameworks to analyze *Interstellar*, in order to shed light on the popular social imagination. In this essay, I begin with Jim Dator's four futures framework, then use Emerging Issues and Weak Signals Analysis, followed by Polak's Image of the Future, apply David Hick's futures empowerment framework, query macro-history, and finish by using Causal Layered Analysis. The intention is to provide examples where futures studies theories, frameworks and analysis shed some interpretive insights into the contemporary imagination.

Four Futures

The first future framework used to unpack *Interstellar* is Jim Dator's four futures analysis (Bezold, 2009). In this analysis, there are four dominant and archetypal images of the future that are currently predominant: Continued growth, Disciplined-descent, Collapse, and Transformation.

Like many recent sci-fi films, *Interstellar* combines a number of these archetypes. For example, it is a Disciplined-descent society with food rationing, limited educational opportunities (people are compelled into food producing roles) and with overtones of ideological social control (the Apollo moon landings are officially understood as fakes). Likewise, a Collapse future is looming within the filmic narrative, as the blight inexorably destroys the human food supply and composition of the atmosphere. Finally, the discovery and use of a wormhole, and the eventual development of anti-gravity technology, represents a Transformational future.

Dator's four futures is a solid starting point for asking, why this combination and composition of futures? The Disciplined-descent society is depicted as a false one, where true (pioneer) science has been abandoned for false survivalist agro-science. The narrative is a reaction against the Gaia / sustain story, which is set in opposition to the Pioneer / March of Science / Progress story ... the purveyors of such a sustain society are shown to be both ideologically and scientifically wrong. The Collapse dimension is an auxiliary to the reactionary narrative – the source of collapse is not anthropogenic climate change, it is blight, which will ultimately destroy the human species. Thus humans cannot settle for life on Earth – our destiny must be in space. The transformational element is a further expression of the pioneer / progress / science 'destiny in space' narrative, in part a return to the golden days of space travel, the power and miracle of science and technology engineering (in this case anti-gravity technology), and as well a continuation of the US colonial narrative (NASA finds new planets to colonize), but intriguingly also through the invocation of a far future super human species that facilitates its own early transition (in a classic time-travel influence loop).

Emerging issues and weak signals analysis

Emerging issues analysis (EIA) (Molitor, 2010) and weak signals analysis (WSA) (Hiltunen, 2008) is used in futures studies to identify and understand the development paths of poorly understood phenomenon which may have significant

impacts on society in the future. In both EIA and WSA, ideas matter, as issues may start as concepts, visions and manifestos, but later develop into social patterns with significant influence. EIA sometimes uses visionary and epochal works as potential precursors to future patterns. Usually, however, it uses anomalous events, innovations and ideas as pre-figurative elements in understanding potential social change.

Is *Interstellar* an example of such visionary and epochal work? Does the film contain any weak signals or emerging issues? The two most obvious future oriented issues include the existence of atmosphere destroying Blight and the development of anti-gravitation technology. Both of these seem to have little scientific basis and are rather fanciful plot devices rather than actual emerging issues. On the visionary side, however, is a future (super) human race that creates a wormhole for its early self (21C humanity) to travel through. This is a visionary idea indeed (not considering the temporal paradoxes), however it would also seem to be (like the Blight and anti-gravity tech) beyond a remote possibility. I'm not sure how long it will take for humans to learn how to harness the power of a black hole and create a wormhole in space, but it would not seem to be anytime soon.

As a metaphor it is powerful, however, and we can relate to the idea of a 'future self' talking to or influencing our present day self and guiding us toward a better future. This is after all similar to the plot device in Frank Capra's *It's a Wonderful Life* (1946), and other films. And this is in part the rationale for noetic visioning, backcasting, and the use of intuition in futures: guidance from beyond the rational present and guidance from the visionary future (Markley, 2015; Ramos, 2015). Yet even while it is a remote scientific possibility, it would certainly qualify as a high impact wildcard event.

The Image of the future

Fred Polak's (1961) core argument in *The Image of the Future* was that civilizations are animated by their image of the future (IoF). The IoF is not simply an epiphenomenal byproduct of a civilization's collective thought, it is a generative force in its own right, animating the actions of those in that civilization and 'pulling' people towards its vision. Civilizations in decline, he argued, had lost their animating vision, causal to decline. The question to ask about *Interstellar* is what it expresses in terms of Polak's IoF.

In *Interstellar* the far future vision of humanity is vast, bold and supreme. It has moved beyond our solar system to other galaxies, learned to bend and create pathways through space-time, and influence its former self (21C humanity). It has supreme power, whatever 'it' is. The near future vision is of humanity harnessing the science and power of gravitation, such that humanity can leave an inhospitable Earth and colonize other parts of the cosmos. It is a vision in which science and technology ensure both the near term and long term power and survival of the species.

Interstellar thus offers a regurgitated version of the modernist technological utopian vision so prevalent in the early and mid 20th century. Modernism was challenged by alternative visions during the counterculture movements of the 1960s and 1970s, which Elise Boulding (1978) argued offered truly new civilizational visions and pathways. The modernist belief in the linear march of science, and

unlimited power of technology (and resource use), collided with new stories and visions, of 'limits', 'steady state' and metaphors such as Spaceship Earth and Gaia.

In Polak's terms, a vision must be potent to animate a culture. It cannot be a rehash of older visions, that people have lost belief in. In Inayatullah's (2008) terms, the film (to the extent that it is wedded to a modernist-only vision) offers a 'used future'. On this count *Interstellar* fails to chart a genuinely new narrative pathway – one with the potential to animate and inspire. The vainglorious hope for a future super species that rescues its 21 C self by using a wormhole is hardly a vision we can aspire to.

Global futures empowerment framework

Futures educator David Hicks argues that when people learn about global futures, there are typical stages of experience that people undergo (Hicks, 2002). In the Cognitive stage he argues that most people are overwhelmed by the sheer complexity of the relatively new (global) scale of conceptualization. People will then go through an Affective stage, experiencing strong feelings, frustration, sadness at the state and trajectory of human development and our ecological crisis, even depression. This is potentially followed by an Existential stage, where a person can re-imagine who they are in this new context of knowledge / awareness / understanding. The Existential stage is facilitated by the 'pull' of the last two stages: Empowerment and Action. Empowerment is through the identification of new pathways, projects, visions and alternatives that offer real hope. Action is the embodied engagement in these new projects.

Using this framework, *Interstellar* can be further unpacked. Cognitively it is just non-sense, Blight and anti-gravity are reminiscent of the chunder of internet spawned conspiracy theories that only heighten the web of mystification and confusion that people experience. Affectively it straddles the despair of a dying humanity with the messianic hope for an otherworldly savior, a positivist 'Lazarus'. Existentially it is a rehash of the modernist self, the triumph of (and distinction between) Man over Nature, rather than a transformative re-visioning of the self in our new global context. In terms of Empowerment and Action, it leaves very little for any of us to do. We can work on other-world survival technology (rockets, landers, probes, colony systems etc.). And we can wait for our future self to open up a wormhole that we might escape through – though we might be waiting for a while. In other words, the film offers false hope, false empowerment and false action, while still providing emotional compensation and catharsis (Ramos, 2005).

Macro-history and temporal narration

Grand stories of change are an important aspect of understanding how and why a future is projected in a certain way. Drawing on the macro-historical work of Inayatullah and Galtung (1997), two narratives seem to be butting up in *Interstellar*. First, the Gaia story of co-evolution is being invoked and challenged. Co-evolution takes a multi-billion year frame of reference and tells the story of a species becoming aware of itself as co-existent and inter-dependent with Earth (Jones, 1997). Lovelock's Gaia hypothesis offered the Earth as a complex self regulating system, stopping short of naming it as conscious. The ontogeny of the human species is laid

out as intimately interwoven with life on Earth ... species come, species change, species go ... and we must adapt and co-evolve in this context of Earth.

In *Interstellar* the Blight and the extreme circumstances it presupposes is conceptually isomorphic with the situation we actually find ourselves in vis-à-vis climate change, whereby we may inhabit a climactic condition completely alien to anthropological or even early primate experience. At a narrative and mythic level what is being experienced and reacted against is a “Wrath of Gaia”, the loss of the intricate and delicately balanced complex self regulating system we live in. This billion year Gaia story, however, is dealt the ultimate trump card in *Interstellar*, future human (super) evolution based on the linear progress of science and exploration, perhaps billions of years into our future, the march of science is endless. Eat your heart out Gaians! Space traveling super-humans win!

Causal Layered Analysis

Therefore at the **litany** level the film is space opera and entertainment. The Blight inflicted on humans and the wormhole are both fantasies (despite being remote possibilities). More tellingly however, at the **social causes** level the film at once goes to extraordinary lengths to accurately depict the novel astrophysical realities it explores (e.g. what a worm hole and black hole look like), but then offers pseudo science when depicting the Earth crisis.¹ But it is at the **worldview** and **narrative** levels where we can make better sense of this film.

The worldview of the film expresses a reaction to the ‘limits’ narrative prevalent in Earth sustainability discourses, and romanticizes and polemicizes the pioneer explorer and scientific vanguard view so prevalent in the US cultural milieu. Narratively, the film betrays a messianic story, where science and the (good ol’ fashion and down home American) scientist-explorer saves humanity against a “Wrath of Gaia”. Amazingly, the messianic heroes on their ‘Lazarus’ mission literally take humanity to another-world. No need for Christianity to do the otherworldly work!

There is an alternative interpretation, however, lurking inside *Interstellar*. This is of the lead character NASA pilot Joe Cooper as messiah, who sacrifices himself by going into a black hole as a means to communicate with his daughter. In the black hole, not bound to the standard laws of space-time physics, he seemingly becomes a spirit that can be in many places in many times. Indeed it is his expression of love that allows him to communicate as a spirit or ghost with his daughter, and which helps him save humanity. In this alternative interpretation, it is the substance of love that resolves the space-time enfoldment dilemma that was opened up (no pun intended) by the wormhole. This aspect of the film subverts the notion of a purely materialistic view of the cosmos. Yet it strengthens its Christian elements into a kind of Christian-Science narrative. While beautiful and elegant in ways, I do not feel this contradicts my core argument in this essay.

Beyond the dualism of Gaia and Modernism: Owned, disowned and integrated visions

My conclusion is that *Interstellar* is not a scientifically rigorous (or derived) film (despite the effort to make it true to astrophysics), but rather a pseudo scientific film

who's core narrative is in reaction to an emerging scientific narrative – human co-evolution within / with Gaia / the Earth as a complex living system. The speculative elements of the film (Blight, anti-gravity, wormholes, future super species) says much more about the ideological commitments of the filmic narrative, rather than a visionary snap shot that prefigures a future world.

The dualism between the emerging science of Gaia via climate change research (and other related research) and the older positivist science of technological engineering and the stars is presented as an either / or. But what if we didn't have to accept this dualism?

One of the most exciting frameworks and approaches to futures inquiry today is an approach developed by Inayatullah (2008), that uses the Jungian inspired analysis of Hal and Sidra Stone's Voice Dialog approach (Stone & Stone, 1989). In this analysis psychologically 'owned' (dominant) and disowned (repressed) visions of the futures are both resources toward integration. Its premise is that, by and large, visions of the future in some way disown an "other", what is considered by that vision to be outside of the acceptable, framed as "outdated", "irrational", "retrograde" etc. There is the preferred, the dominant vision, in *Interstellar's* case this is the high tech space pioneer super race, and there is the disowned, "the world that we reject or are unable to deal with" (Inayatullah, 2008, p.17), in the case of *Interstellar* the disowned vision is the one which has emerged around both the Gaia hypothesis, Earth sciences and Green ideology. A third "integrated" vision or scenario potentially integrates the two.

I want to live in a world that honors both the science of sustainability, understanding our Earth as a complex living system, with the policies and strategies that flow from this, in addition to the exploration of space, the development of 21st century STEM (science, technology, engineering, mathematics) fields that that further potentiate human advancement. Rather than a binary, we might ask, 'how might the science of Gaia support human exploration and colonization of other planets', and 'how might STEM support our understanding and protection of our home the Earth'? I believe the answers are all too obvious, there are many examples of this happening now.

Transcendence: toward a Gaia-tech future

One of the best examples can be seen through the work of the contemporary Maker Movement, which combines citizen based high tech innovation with a strong commitment to planetary and community sustainability. Other examples include clothing company Patagonia (which combines high tech closed loop / up-cycling manufacturing processes), the carpet company Interface, and thousands of examples in the use of space technology (e.g. satellites) in environmental protection.² Perhaps the biggest discrepancy between *Interstellar* and reality is NASA itself, which began as a national space exploration agency for the US, but has over time evolved into an environmental advocacy organization based on its planetary research capabilities. Inayatullah has advanced the idea of a Gaia Tech vision, that moves past the technology vs. sustainability dualism and where "technology [is] for the earth and technology [is] developed in the partnership model (outside of corporatist science)."³

Conclusion

This short essay used the tools, frameworks, concepts and theories in the futures studies field, to analyze a recent science fiction film and shed light on questions of contemporary culture. The deeper cultural reasons for *Interstellar's* narrative commitments, and their connection to its audience, were not fully explicated here. However, the frameworks provided leverage into understanding the dimensions and dynamics of the film and its narrative, casted interpretive light and provided alternative pathways in conceptualizing our shared futures. It is my hope that futures studies can be more effectively used as a resource in unpacking and deepening our understanding of ourselves through applying its tools on the science fiction canvas.

Notes

1. The film was purportedly based on our most contemporary understandings of science, with respect to how a 'wormhole' in space-time operates. While this was an achievement of the film, the depiction of the 'Earth' part of the science (the issues being faced by near future humans) seemed far more like pseudo science. Instead of extrapolating current Earth science trends (e.g. global warming), the narrative developed a wildcard seemingly disconnected from scientific probability or possibility. This most telling discrepancy in the film may also reveal its narrative commitments.
2. See: <http://ourworld.unu.edu/en/how-things-work-environmental-satellites>
3. accessed May 20 2015: http://www.aacc.edu/futuretakes/file/v7n1_article9.pdf

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