

# Future Technology in the ‘Star Trek’ Reboots.

## *Part II: Complex Future(s)*

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### **Introduction**

As something for us to aim towards or as a lens to view how future technologies can be used within future worlds and contexts, something always needs fixing in *Star Trek*.

With our first explorative adventure in Future Technology in the ‘Star Trek’ Reboots. Part I: Tethered and Performative, we examined how, through looking at future cultures and locations, brimming with advanced, shining examples of gadgetry that are tethered to our own contemporary reality, one might grasp that future technology across the Star Trek reboots - *Star Trek ‘09* (Abrams, 2009a), *Star Trek Into Darkness* (Abrams, 2013), and *Star Trek Beyond* (Lin, 2016) - doesn’t necessarily reflect a better way of living, or a more sophisticated culture, but are

one way in which, as “performative artifacts” within a fictional diegesis, they may reflect upon our own place within society and the governing ideological structure of society itself.

As a part of this introspective endeavour, when focusing on the technology used within the *Star Trek* franchise, there is usually an attempt to lay out communicators, teleporters, phaser weapons, and hand-held tricorder devices as a prediction of future technology and as an attainable final goal. This is problematic because Science Fiction is not a terminus point; it does not act as the end point of a straight line according to how we perceive the world will be from today, but rather it can be used as a lens for us to probe, reflect and actively shape today into the future that we want it to become. *Star Trek* doesn't foretell a type of future as a concrete inevitable outcome and final destination, it presents us with a fictional diegetic vision of how the world could be.

### **Future(s) Technology**

When considering the fluctuating probabilities presented by future worlds in the *Star Trek* reboots, perhaps nowhere is more at the forefront of this issue than the creation of the Kelvin Timeline, an alternate universe from the Prime Universe continuity of *Star Trek: The Original Series* (Roddenberry, 2007), caused by Nero's (Eric Bana) time-travelling attack on the USS Kelvin in the opening scenes of *Star Trek '09*. As the events play out, Spock Prime (Leonard Nimoy) is able to bring technology (red matter and his ship, the Jellyfish) and information (such as the equation for transwarp beaming) from not only a different point in time, but also an entirely impossible to replicate future place of existence from within the Kelvin Timeline.

According to visual effects supervisor Roger Guyett, production designer Scott Chambliss, who worked on the design of the Jellyfish, imagined the ship's exterior surface as "sophisticated technology married with organic things", as "It might even be a technology Vulcans' 'grow', like a plant of high tensile steel." Guyett also explains that the ship's warp signature was intended to evoke clean “green” energy, in contrast to the “burned dirty fuel” aesthetic of the *Narada* (Vaz, 2009 pp. 138-139). In the reboots, the planet Vulcan is destroyed, which suggests that the technological advancements enjoyed by an unhindered species would not likely be repeated in the Kelvin Timeline, but it's equally significant that the notion of growing organic materials (and

Spock Prime's "human" response to using it: that it can't solve the problem he was given, so technology still has limitations much like himself) is given space to breathe in a hypothetical future scenario where voice activated controls and a rotating tail section do not seem--to employ a double-negative--illogical. After all, bio-inspired structures are currently taking-off for optimizing support material in 3D printing and load bearing applications (such as bridges or medical splints) primarily as a result of the advancement in CAD and the high order of computations needed. Vulcan technology, in this respect, doesn't seem that far-fetched, although the 'growing' aspect is probably a long way off.

The Jellyfish and the Narada are excellent examples of hypothetical future ship designs. The Romulan ship, which is demonstrative of asymmetric organic design and chaotic nature, counterbalances the Vulcan ship, which with its symmetric design represents a culture of ordered nature from the same future time period. The evolution of spacecraft in itself is also quite significant here, evolving across a timeline from boxy (retro), to iPad minimalistic (modern) to biological (future). In designing future scenarios for *Star Trek*, one might presume that the USS Enterprise is "the" future end point (as it has to look the "coolest" for the viewer who has paid to see the film), but actually the bio-mimetic design is far more complex and effective. This explains why Nero can destroy Federation vessels so easily, and why the drones (which are from the past but technologically more advanced) in *Beyond* are equally beyond the capacities of the Federation ships. It also emphasizes how *Star Trek* is not a prediction of "the" future. Indeed, this approach is incredibly limiting as "Most futurists... forecast a wide variety of 'alternative futures' rather than predicting 'the future'", to help people move towards their "preferred future", while "monitoring their progress towards it, and reconsidering their preference in the light of new information [over time]" (Dator, 2002 p. 6). Those seeking to understand the future, tend to work with possibilities, not probabilities, and as such cultivate a range of evolving scenarios based on current knowledge and available trend data.

Nero's ship was designed to be a mining craft, and was used as such in the Prime universe, but given that it has only appeared in the Kelvin Timeline as a vessel for war and his ship or its technology have possibly not yet been invented, in an abstract sense, the Narada has never been a mining ship and the repurposed mining drill has only ever been used to destroy planets. It is

poignantly fitting that in travelling through time, Nero is also able to (mis)appropriate the alternative “future” technology of the black-hole creating red matter that was intended to be used as a method of saving Romulus Prime (Nero’s home planet), to destroy Vulcan (reboot Spock’s [Zachary Quinto] home planet) in the alternative past. These are fitting Sci-Fi metaphors for the potential perils of harvesting and repurposing future technologies and expectations to fit contemporary culture: sometimes you get flip-phones and sometimes you get an off-brand variation on the Death Star that can wipe out your home world at the push of a (bio-mimetic) button.

To complicate matters further, the drill design “referenced particle collider technology”, according to Chambliss (Vaz, 2009), which also further inverts the noble uses of (modern) advanced technology for exploratory purposes within the *Star Trek* universe. Combined with modern technological achievements, the Narada was also purposefully designed with the biological architecture of Antoni Gaudi in mind, with the exposed wiring being like sinewy tendons. The Romulan race were seen by the film’s designers as being especially emotional (certainly more emotional than the Vulcans) and they wanted to express this in the ship’s aesthetics specifically through the relatable touchstone of a 19/20th century Modernist designer from our collective past. As with *Star Trek’s* vision of Future-London and the interiors of the Starfleet ships, the past is just as crucial in anchoring the future, but in this example we can also see that the technology does not have to remain believable through being strictly utilitarian and practical: it can also have a more overtly fantastical element tethered to the future possibilities and permutations of our current reality.

Without resorting to planet shattering black-holes, there are two distinct ways in which *Star Trek’s* “alternative futures” can help to shape the world today:

It can be something to aim towards. Hence, communicators have become flip-phones, but in a way that is more advanced and suitable for contemporary living than the original ‘60s design anticipated. As Bruce Sterling points out: “If you successfully predicted 1975 while you were writing in 1960, there’s no reason why anyone nowadays would know or care about that” (Shedroff and Noeseel, 2012 p. xix). This is why innovation and inspiration should not use a

fixed influence from the past as a limitation, explaining why current mobile phone design has already moved away from the clam-shell *Star Trek* design to benefit touchscreen devices. NASA, for example, have also developed technology explicitly to reach their influenced future vision and are happy to move beyond it with real world applications (which is why there's a whole section about the science of *Star Trek* on their official website (Batchelor, 2016)).

### **Exploring Complex, Alternative Retro-Futures**

Additionally, alternative futures can be used as a lens to view how future technologies can be used and appropriated within future worlds and contexts. So, for example, we don't have image manipulation devices like we can see in *Into Darkness* when Kirk (Chris Pine) is looking at the John Harrison/Khan bombing footage (which in itself has echoes of *Blade Runner* (Scott, 1982)), but crucially, this doesn't prohibit the film from showing us ways in which such technology could be used (in this instance, a touchscreen interface on a handheld tablet), helping us to understand how they can be used (by law enforcement to review footage), the problems they solve (real time playback through three-dimensional space), and the problems that they raise (how many cameras would be required for such technology to be feasible, how precise can touch controls be, etc.).

The reboots are particularly interesting because they are not only a representation of a possible, plausible future, they also knowingly reference the original '60s television series (which also shows various potential futures). This explains why communicators in the reboots are still quite clunky in comparison to mobile phones in popular use circa 2009 (especially when it's worth noting that communicators became small badges in *Star Trek: The Next Generation* (Roddenberry, 1987a), presumably in an attempt to move beyond the near-future mobile technology of the late '80s, when the show was produced). Obviously, how we read and respond to the '60s vision of the future is viewed through a contemporary lens, just as the '00s Enterprise of the *Star Trek* reboots can already be seen to be roughly analogous to the shiny and sleek iPad aesthetic of Apple—which the company has already refined and evolved in different directions by 2016. A subtler example of repurposing, instead of entirely overhauling, retro-futuristic *Star Trek* technology, would be the “dome atop the original ['60s] Enterprise dish” which “seemed to only have a decorative purpose” but for the reboots was “rethought along the lines of a sensor

bubble on the nose of an airplane” (Vaz, 2009 p. 90). This marriage of future possibilities with relatable contemporary design logic helps to make the franchise feel more relevant and comprehensible, even if it is currently impossible to replicate.

Naturally, “Our frame of reference unavoidably and unconsciously biases our interpretation of the world” (Mankoff et al., 2013 p. 1629), and this is certainly true for what may also be one of the most incongruous areas for the reboots: the occasional use of contemporary vehicles. From the vintage red 1965 Corvette Sting Ray C2 which young Kirk is seen driving at the outset of *Star Trek '09*, through to the contemporary BMW dirt bike Kirk inexplicably finds in an immaculately preserved condition in the USS Franklin mess hall of *Beyond*, the action-adventure genre roots of the franchise unabashedly show as the stitching to the seams of the future technology patchwork laid before the viewer. (“Will J.J. Abrams or Justin Lin be directing a forthcoming *Indiana Jones* film?” one might wonder.) These vehicles are supposed to be anchored to our collective pasts, with, in the case of the Corvette, an extra nod to the ‘60s era when *The Original Series* aired. It also makes sense that Kirk would have an appreciation for the 20th century in the same way that all *Star Trek* Captains before and parallel-future-in-front-of-him have had, but when the theatrical trailer and poster for *Beyond* foregrounds the bike (although in the poster it is found at the opposite end from the Enterprise to make a pointed visual statement about having to traverse the technological divide), and more significantly, the film features bike stunt scenes that could have come from World War II based *The Great Escape* (Sturges, 1963), then the overt intrusion of realistic modern technology arguably works against the realism of the diegesis as it is directly competing with the future instead of being a sympathetic part of it (in the way that World War II aerial dog-fights can be upgraded into spaceship battles). While *Star Trek* creator Gene Roddenberry stated that “If you wouldn’t believe it in the twentieth century, then our audience won’t believe it in the twenty-fourth” (Roddenberry, 1987b p. 9), you can also reverse the sentiment: sometimes not all technology in the hypothetical far-future feels futuristic enough, creating a type of diegetic-dissonance with our own reality—which has a value for insight (Why does the Federation pride itself on looking backwards or insist on clinging to the past while they are looking into the future? Where would you obtain fuel?), but may be a little too jarring or evocative of Hollywood genre compromises to satisfy the demands of the viewer.

## **Complex Technology and Complex People**

When we see visions of the future (especially from a design perspective) they tend to be extremely simplistic and task/problem orientated, so keeping that human complexity is what makes *Star Trek* more believable; the way in which they, as fleshed out individuals, react to technology is more interesting and less predictable. In Future Studies it is comparatively easy to predict what technology can do, but it's more difficult to know what a human would do with that technology. In many ways, this is still an unknown factor in large areas of Future research. When the interaction between person and machine takes place, it cannot be presented in too simple a fashion (like casually bike-riding around an alien planet), otherwise it would not feel natural to the viewer.

It's useful to consider that the designers of *Star Trek '09* were genuinely torn between making Uhura's (Zoe Saldana) iconic earphone mic impractically large in keeping with *The Original Series*, or a sleeker and more modern contemporary design. They went with a variation on the original design, preferring form over function, but also relying on nostalgia to add complexity and plausibility to the diegesis. In the Button Acting 101 addendum to the *Star Trek '09* Blu-ray (Abrams, 2009b), it's explained by both Anton Yelchin (Chekov) and Zoe Saldana, that while there were no scripted orders with which to execute commands and actions on the various user-interface panels before them, the actors were required to familiarize themselves with their work stations prior to shooting in order to make their actions seem plausible in a more diegetically realistic context that could be understood by a modern viewer. Much as in real life, multistable perceptions and interactions are played out for a desired effect. It is precisely the individual's interpretation of the technology and perceived interaction possibilities and sequences (here, by the actors in character) that make the scenes appear real.

With the *Star Trek* reboots there is a conscious effort to make interfaces believable. There is a mixture of making it look complex enough that you couldn't operate it yourself, but allowing for an understanding that someone from an "advanced" future could use it. Rotary dials, sliders, and toggle switches are all present on the bridge of the reboot Enterprise. The Franklin, which we see in *Beyond* as a space-ship from their past, but still our future, has hand rails for stability and LCD

displays, whereas the Enterprise has fantastical touch screen interfaces, and transparent displays (wall-lined curved screens were introduced in *Beyond*). As an anticipation of future technology, the Franklin is an anachronism comparable to the communicators, as from this point in history (2016, the year that *Beyond* was released), there's no reason why the Franklin in the future would be using technology that would be obsolete to us today - unless it was specifically to try and fix the viewer within an analogous mind set to that of the Enterprise crew.

This appears to be a conscious design decision continuing from the first reboot movie. According to Chambliss, *Star Trek '09* "definitely has this future-retro feel to it. The first part of our movie, our Kelvin spaceship sequence refers to the Sci-Fi of the late '30s, like the Buster Crabbe stuff [such as Flash Gordon], and also like the early '50s stuff like *The Day the Earth Stood Still*", specifically to "create this look that's 30 years before our main story", which would make the "Enterprise look very new" (Abrams, 2009c).

As the crew of the Enterprise consistently discover when fighting or using technology from the past, newness is an entirely relative concept. But while McCoy (Karl Urban) might complain of the medical equipment on the Franklin that "these things are from the Dark Ages", the technology available on the Enterprise might also be surprisingly familiar to viewers. *Star Trek '09*'s Enterprise medical bay, for example, is full of contemporary wall mounted Dyson Airblade hand dryers, which, having been first introduced in 2006, they might have been used by viewers in the cinema prior to watching the film, although their future functionality is never explicitly stated or utilized within the diegesis. When McCoy, in *Beyond*, is using a flexible screen to look at the internal organs of a crew member, that flexible OLED screen technology (without the X-ray vision) is cutting-edge technology that is actively being prototyped now, so again we have a modern technology which has been engineered to look like a far-future concept.

### **Adaptive Humanity**

In design, one can either attempt to create a new world through creating new objects or solve the problems of the current world through creating solutions. The Enterprise is a kind of halfway house in that it is capable of exploring these new worlds while also being underequipped for the realities of exploration. We know that the Federation can make bigger and better ships (we see it



with the USS Vengeance) but somehow Starfleet didn't think that was appropriate. The Enterprise is explicitly a ship made for exploration, but they don't actually explore much and we never really get to see the explorative capacities of the ship. Notably, while the Enterprise of the reboots is considered to be the brand-new flag-ship of Starfleet (we even see its construction and maiden-voyage), the crew are constantly tested by the advanced technology of their antagonists. In this scenario, technological and strategic improvisation, leadership, loyalty, and all manner of other positive qualities must be embraced and constantly clutched to, not only to be a better person, but to survive as a person at all. With *Star Trek*, Roddenberry wanted to see a crew that could “transcend their human failings [and] cope with fantastical situations” (Roddenberry, 1987b), and with the reboots, this is the technologically-assisted core of exploration that permeates the driving narratives.

One of the quirks of the *Star Trek* franchise is that everyone is super amazingly tech literate. Broken circuit boards can be fixed and modified, mechanical doodads can be retrofitted to output twice what the previous generation thought possible, and the limitations of human understanding are frequently disregarded on a case-by-case understanding. The Enterprise crew are the brightest and boldest, representing the best of humanity. Sure, in the early scenes of *Star Trek '09*, Sulu might forget to release the breaks before flying out of dock, and yes, Chekov might have trouble with the ship's onboard voice recognition system (“Wictor, Wictor”), but by the end of the reboot trilogy, McCoy is able to pilot an alien ship, Sulu can ski-jump launch a decrepit ship into space, and Chekov can easily use a less than fully functional computer system to trace the exact location of the prison camp where the crew are being held captive.

In the reboots, this literacy has also led to a greater emphasis on the mechanical engineering role of Scotty than the classic rational/passionate dichotomy of Spock Prime and McCoy Prime representing conflicting aspects of Kirk Prime's psyche. But this ensemble isn't just about Kirk: it's about the crew and how they learn to survive through adversity. This is why, in *Star Trek '09*, after “giving her it all she's got”, Scotty is able to transcend the capabilities of the Enterprise, when within the gravity well of a black hole he has the idea to jettison the cores and ride the shock wave into the sunset. *Into Darkness* appears to sideline Scotty when he points out that the torpedoes present a danger aboard the Enterprise (he's right, of course), but when he re-

enters the fray, Scotty manages to singlehandedly disable the firing capacity of the technologically superior Vengeance - something that he's more qualified to accomplish than any other crew member. This is also why in *Beyond* Scotty is the one that uses a remote control to navigate the missile tube he has climbed within to escape the free-falling Enterprise, and Scotty is the one who makes a deal with Jaylah (Sofia Boutella) to help him save the Enterprise crew, based on his ability to fix things (and so he "fixes" the entire Franklin to make it space-worthy again). Crucially, by way of contrast, even though Jaylah already has a device where she can project herself multiple times and is able to use the holographic image refractors that are rigged up to the exterior of the camouflaged Franklin, because she isn't human (or a member of Starfleet, until the end of the movie), she doesn't quite share the potential to overcome hardship in the same forward-thinking way. Jaylah maintains the status quo of her situation through technology she has adopted: the crew of the Enterprise, demonstrated here through the actions of Scotty, overcome them through technology they have adapted. This is useful, because in the *Star Trek* reboots, despite the phenomenal capacities of the finest humanoid minds, future technology consistently fails.

Across the reboots, despite the exploding ships and apocalyptic threats to snow-globe Starbases, densely populated cities, and planet Earth in general, advanced future technology never just fails for the sake of just failing—there is always some intervention by an outside force that tests the Starfleet crew who must overcome the difficulty of their situation. So, for example, in *Star Trek '09*, the crew can't use their teleporters as they are scrambled by their close proximity to the Narada, which forces them to perilously parachute down to the mining drill (losing a disposable "red-shirt" in the process). When Chekov successfully manages to "do zat!" through transporter locking onto Kirk and Sulu as they are freefalling from the drill, the limitations of the future technology become further evident when Chekov isn't able to replicate the feat, with Spock's Mother (Winona Ryder) falling to her death. Scotty is also seen fighting the same future technology. When he manages to use the transwarp equation to beam himself and Kirk onto the Enterprise while it is in motion, Scotty almost drowns. When Scotty later beams Kirk and Spock onto the Narada, he thinks they'll be somewhere safe, but he places them directly into combat. Technology use in *Star Trek '09* then, serves to demonstrate the absolute limits at which the

crew are working—sometimes they aren't always successful, but at least they try to overcome the situation, usually triumphing in the end.

*Into Darkness* also has a number of technology issues, this time primarily centred around the warp core. For example, Chekov, as the newly appointed Chief Engineer in *Into Darkness*, believes that it is his fault for the Enterprise dropping out of warp and being rendered comparatively immobile in the face of an enemy, when in fact it was an act of sabotage by Admiral Marcus. Kirk is later then forced to realign the warp core to save the Enterprise and her crew, consuming lethal amounts of radiation, but also, like Chekov, these embattled moments are also an opportunity for personal growth and maturity.

By *Beyond*, having learnt the lessons of the previous two films, the crew of the Enterprise are as easily capable of overcoming adversity with ingenuity as their *The Original Series* progenitors. Scotty can redirect power from the warp core to the thrusters; McCoy instinctively uses a rock to smash a gun, narrowing its beam to heat metal for surgical work on a critically wounded Spock, saving his life; Sulu and Uhura use space-snot to break the lock of their prison cell before the camera has even had an opportunity to establish their incarceration; and the most pronounced example of defeating technological obstacles through improvisation occurs when the crew of the Enterprise combine their futuristically enhanced skill-sets (engineering, navigation, communications - without the aid of Kirk, who's fighting Krall) to use old technology (amplifying VHF transmissions via the medium of the "old fashioned" Beastie Boys - a contemporary hip hop group) to prevent the imminent annihilation of the Yorktown and the Federation.

This narrative arc, of defeating technological obstacles through sheer adaptive resourcefulness and a dedication to succeed, is at the heart of the *Star Trek* reboots and at the core of Rodenberry's original vision for the franchise. Seeing the Enterprise crew run a gauntlet of near-impossible demands is both edifying and satisfying; seeing a future "better" version of ourselves overcome their own limitations is both individually aspirational and socially inspiring. *Beyond* finishes much as *Star Trek '09* began, with the Enterprise being built for a mission of space exploration, but while the technology to rebuild such fantastical spaceships is in our distant

future, the lessons that we can learn from these interactions can be reflected upon, explored, and used today.

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