Figure 30 Panel #3 from the Dark Euphoria series (Goodwin, 2011b)
The Emergence of the Digital Aesthetic

Living art draws its life from the surrounding environment. Our forebears drew their artistic inspiration from a religious atmosphere which fed their souls; in the same way we must breathe in the tangible miracles of contemporary life – the iron network of speedy communications which envelops the earth, the transatlantic liners, the dreadnoughts, those marvellous flights which furrow our skies, the profound courage of our submarine navigators and the spasmodic struggle to conquer the unknown. How can we remain insensible to the frenetic life of our great cities and to the exciting new psychology of night life: the feverish figures of the bon viveur, the cocotte, the apache and the absinthe drinker?

- Umberto Boccini, Carlo Carrá, Luigi Russolo, Giacomo Balla, and Gino Sereveni, in the leaflet Manifesto Futurist Painters first published as a in Milan in 1910 (Boccioni, Balla, Carrá, Russolo, & Sereveni, 1910)

This data is a new asset, you want it to be liquid and to be used.

- Sandy Petland, MIT Human Dynamics Laboratory, quoted in the New York Times article Big Data Is Opening Doors, but Maybe Too Many, March 23 2013 (Lohr, 2013)
From the outset of the 20th Century the bond between man, machine and industry was proclaimed as the zenith of human endeavour and the electrification of the city its greatest manifestation. From Marinetti’s “millennial gloom” rose the prospect of a new revitalised utopia wrapped in the gaudy blanket of the Futurist movement. The city, the real, the electric. This had been foreshadowed by the completion of the Eiffel Tower in 1887, its heroic debut at the World’s Fair of 1889, the birth of Modernism painting by the Fauvists at the Salon d’Automne in 1905, and of course, the publication of Marinetti’s manifesto on the front page of the French newspaper Le Figaro in 1909. Europe was the centre of the Modern, Paris its glittering icon, and Montparnasse, the hotbed of creative ferment (Adato, 2010). Here we find the origins of 20th century technological convergence - the verticality of the Eiffel tower, the glow of the street lamp and the marvel of manned flight.

For the Italian Futurists, this time of immense change was undeniably the future writ large; profoundly new and visually dramatic changes in urban space locked into the image stream of their consciousness as much as the synaesthesia of colour and sound and the cavalcade of poetic manifestos which would announce their intent.

Science and engineering had moved beyond the exclusivity of rarefied institutions and entered the cultural circles of artists, architects, poets and theatrical auteurs. The Futurists, equipped with the demystification of scientific and technological processes along with a greater insight into geometry and formal psychology reconstructed the everyday into a feverish interplay of shape and form, colour and light. The
mechanics of the everyday and the technology of the “modern capital” informed their work - and
their audiences - to the possibilities inherent in a technologically progressive future. Form played an
important role, as the Futurists extended upon the Impressionist and Pointillist works of the late 19th
century – in as much as Picasso and Braques were doing with their Cubist work – and set about
reconfiguring their own practice to accommodate new modes of representation. As Umbro
Apollonio states in his introduction to a recent collection, The Futurist Manifestos:

... suggestions and reflections on the growth of scientific and mechanical ideas
were no longer an absolute novelty. Studies in dynamics – in full progress at the
time - together with speculations on the dimension of time, no doubt also had
their effect on artistic ideas. And it was not without reason that visual artists
showed a great interest in the theatre, in forms of live entertainment, and in the
cinema – expressive techniques in which rhythm and movement, both in objective
representation and indirect evocation, are of the essence (Apollonio, 2009).

This convergence of disciplines, this interplay between genres of art production and a
growing awareness of the sciences is reminiscent of the emergence of media arts practice a century
later. As Brian Eno recently declared, “Here I am an artist – who reads mostly science books – like
most other artists. I know very few artists who read books about art” (Eno, 2011, p. 61). The
interplay of art and science and of philosophy and technology heavily influenced the compositions
and subject matter of the Futurist painters. Yellow Dancers (1912) by Gino Severini, Dancers & the
Spring I (1912) by Farncis Picabia, Horizontal Construction (Horizontal Volumes) (1912) by Umberto
Bocconi and Nudes in the Forest (1909) by Fernand Lerger (Ottinger, 2009) share an obvious
influence with the Impressionist, Divisionist and recent Fauvist past yet they hint at the possibilities
of a new form of dynamic movement born from Cubism which liberates not only the human form
from two dimensional representation but colour and light as expressions of the body electric. Here
the use of abstraction - the reconfiguration of perspective, vivid tonal contrast and the
interpretation of the human form in movement (and repose) - demonstrate a duality with the more
kinetic interpretation by the Cubists. This reading of the possibilities of representation inspired the
Futurists to move beyond the limits of the human form to an interpretation of machine technology -
the street, electrification, heavy industry and mass transportation – permitting a vivid imagining of
the rapid technological evolution of the modern European city.

The influence of dynamics and the live performative arts can be seen in the vibrations of
sound and the illumination of electrification. In Giacomo Balla’s Rhythm of a Violinist (Balla, 1912)
for example, the violinist’s hand becomes dynamic, the previously unseen ‘frames’ of movement –
as would be evident in a similar cinematic sequence – is captured within one single frame (see Figure
32). Visible too is the sound, the vibration evoked in the frenetic composition of the image, giving a
sense not only of movement and form but the unseen aural composition. Luigi Russolo’s iconic 1911 work, *Music* (Russolo, 1911) (see Figure 33) takes this one step further with his exploration of synaesthesia in which associations between the senses – taste, touch, sound – are represented by colour, shape and repetition. The piano player is seated – or perhaps he is standing – his hands move briskly across the keys as the composition swirls into the auditorium around him. Expressed with bold reds, greens and yellows even the faces of the audience are enamoured – and in some cases aghast – by what they are hear, their towering forms surge to the music’s spell. The music becomes a dynamic visible entity, dominating the image. The pianist, although central to the composition emphasised by rings of circles converging into the background behind his head, is in silhouette, his hands multiplied across the keyboard, his head blurred between two moments (or frames) of action.

The achievement of this construct of synaesthesia is the ability to evoke not one moment but an evolving succession of frames and through the use of repetitive shapes and colour to denote sound in a visual motif. As Boccioni and his collaborators explain, “In order to make the spectator live in the centre of the picture, as we express it in our manifesto, the picture must be the synthesis of what one remembers and of what one sees.” (Boccioni, Carrá, Russolo, Balla, & Severini, 1912, p. 47) The technique is particularly evocative when translated to the contemporary video form, most
obviously VJ mixing and video mapping accompaniment to live music performances, and within the context of the single channel video frame, the music video clip. Through the use of technology artists can play with Boccioni’s notion of what one “remembers” and what one “sees” by slicing the sensation of sound and vision into interchangeable units of time.

Chris Cunningham, a British video artist who was trained in advertising is renowned for his refined yet challenging works that explore the synergies between the visual image and its musical accompaniment. One of his most powerful constructs is his music video clip *Come To Daddy* (Cunningham, 1997) for the electronica artist, Aphex Twin. Here the links with the Futurist synaesthesia aesthetic are most evident. Cunningham deploys a variety of techniques to mesh the drive of the music and its occasional interventions of noise and electronic missives with his heady mix of visuals. Narrative devices are suggestive at best as the video operates on various dissonant layers: signal interference, static impediment of the image and didactic symbolism. This is high-end commercial video technique meets industrial electronica – colours are de-saturated, a tone of abandonment exists within the frame and between the cuts, the bleak isolated setting of the English tenement.
blocks is palpable, all now familiar aesthetic tropes of this genre of English film making. The video’s premise features an old lady walking a dangerous looking pit-bull through the dilapidated ruins of the Tavy Bridge Shopping Centre in Thamesmead, London. From the dark pockets of the ruined multiplex emerge a small group of schoolgirls with ghoul like facial features carrying a TV monitor which acts as both visual device through which we see the vocalist’s twisted visage and a literal construction of the clip’s tele-matic horror. But what makes this video so emblematic of the Futurist technique is not only its use of synergetic editing to evoke synaesthesia like sensibilities, but Cunningham’s willingness to damage, cut and subvert the genre’s clean aesthetic edge with generative swabs of colour and abrupt interventions of static and machine-like interference.

This technique mixes the kinetic vibrations of Balla’s *Rhythm of a Violinist* and Russolo’s *Music* to dramatic effect, subverting the properties of what is essentially a linear format in a brutal non-linear fashion. The literal representations of the audio track are also evoked through the closing sequences of the clip when the terrified and disorientated old lady is confronted by one of the most ghastly of Cunningham’s manifestations, a thin ravaged ghoul-like mother figure of the rampaging schoolgirls. And as if to articulate the most violent interdependence of organism and machine this

---

13 For further evidence of this see one of Cunningham’s contemporaries whose two films, *Trainspotting* (Boyle, 1996) and *28 Days Later* (Boyle, 2002) evoke a similar aesthetic while elsewhere Cunningham’s work for Playstation and Bjork adds a technological veneer to the darkness.
alien creature initially emerges slug-like from the screen of the TV monitor born from the deep bass tones of the audio – a symbolic representation of the image as much as it is sonic provocateur. While their confrontation could be read as the culmination of whatever narrative may exist and a searing diegetic illustration of the music’s apocalyptic crescendo, it is nonetheless one of the most exemplary distillations of contemporary video’s synaesthesia renderings.¹⁴

![Figure 36 Still frames from Come To Daddy (Cunningham, 1997)](image)

Yet also inherent in these images are moments of simultaneism - the flicker and static of the digital display device - the very elements of image reproduction rendered fragile, traumatised by the ferocious tone and frequency of its aural companion – a clear nod to the signal disruptions of Nam June Paik, Gary Hill and Bill Viola. In the bottom right image of Figure 36 we can even see that the frame has been clipped with this interference, as if the image itself cannot help but shudder and dodge the dimensions of the enclosing aspect ratio of the frame itself. As the sequence closes out we catch glimpses of the urban decay. There is no light, no witness, no end to the location’s ruinous visage but instead the image itself becomes an evocation of the devolution of screen fidelity by the electrical instrument - the monitor, the TV, the CCTV camera, the magnetic tape – all of which preside hauntily over the final moments of this gothic high-tech construct of electronic music’s

¹⁴ Two other examples come to mind here, while not as sophisticated as Cunningham’s Come To Daddy but still formal experiments in synaesthesia, are Michel Gondry’s video clip for The White Stripes, The Hardest Button to Button (Gondry, 2003), and Gondry’s clip for the Chemical Brothers Star Guitar (Gondry, 2002).
disgruntled – yet symbiotic – relationship with machine vision. While the set piece here is the transmogrification of an old electro-magnetic television set into something bestial – a primordial chrysalis which emerges from the screen and transforms into a toxic shimmering gargoyle - the message is simple: the music is tearing the screen apart.

Wolfgang Ernst is very clear that there exists a separation between the medium and the cultural product - that the cultural artefact is entirely separate from the medium’s channels which allow its passage. Content operates on human historical time while the signal, and the channels which permit passage, are operating on machine time. For Ernst and Félix Guattari in particular there exists an entire epistemology around the aesthetics of the signal (Guattari, 1995). Jussi Parikka, Ernst’s translator for the English edition of Digital Memory and the Archive, defines this as aestheticotechnics: “It is less about the objects of or in those channels than about the operations that introduce the patterns, pulsations, and intervals through which information becomes a reality of the channels before becoming a reality for the phenomenological viewers, listeners, or readers of media” (Ernst & Parikka, 2013).

For Ernst the technological frameworks have more aesthetic appeal than any metaphor or semantics which could be attributed to what is being transmitted, it is Claude Shannon rather than Marshall McLuhan who is the technical father of modern media culture, and that Manovich was right when he declared in 2001 that “the logic of the database replaces that of the narrative in digital media” (Manovich, 2001). The very fabric of the media channel, the properties of its signal and the
machine time of their translation form the basis for various modes of technical disruption explored by contemporary media artists. Indeed, to disrupt the system – to mess with the signal – could well be the product of an ever increasing interest by artists and researchers in what Parikka and Ernst define as their aestheticotechnic.15

However, while more traditional investigations into this technical framework in the 1960s and 1970s by artists such as Nam Jun Paik who worked with modified video equipment and manipulated video signals and John Cage’s electro-acoustic explorations and prepared piano experiments deal with this aesthetic directly, a new set of concerns would appear to be motivating contemporary practice.16 The hidden, elusive – “black boxed” – nature of a medium’s technical framework, the marketing discourse around image definition and screen resolution, the rapid decline of chemical and mechanical modes of art making, the politics of bandwidth and the influence of hacker and maker communities all would seem to be likely motivators in the context of this discussion. These factors – and the more enveloping conditions proposed by Sterling and Virilio and Žižek – differentiate the new digital aesthetic of the culturally coded object and the technical framework of a strictly technological medium.

My image series, Glitchaclysm (Goodwin, 2011c) from the Dark Euphoria collection, is an example of a genre piece that interrogates the technical framework of video playback and display. Yet this is not necessarily a controlled outcome, the nature of the intervention is mostly software based and the results unpredictable – what Caleb Kelly has identified as a “malfunction” (C. Kelly, 2009, p. 211). But we might also describe it as a technique, a deliberate intervention known more generally as glitch art. As Rob Myers explains, “Art makes invisible order tractable by making it

15 There is a strong tradition of electronic and signal interventions within video art from the 1960s onwards, beginning with Nam June Paik’s Video Tape Study No. 3 and Electronic Fables and continuing with works such as Katsuhiko Yamaguchi’s Image Modulator and Gary Hill’s Electronic Linguistic. Each of which address the medium and the signal itself in the structure or content of the work. This is reflected in contemporary modalities by glitch artists, circuit benders and datamoshers in which the tradition of technical intervention and interpretation for aesthetic affect has a new digital context. In addition to this, musicians and sound artists working with noise and sound manipulation such as Ben Frost, Trent Reznor, Aphex Twin and Radiohead echo this philosophy in their work and concurrently with that of their image manipulating collaborators.

16 The interventions of artist David Hill on Scotland’s BBC in the 1970s represent a similar site of manipulation which questions the structure of the media on the medium itself. TV Interruptions (Hall, 1971), was a series of short video art sequences – a tap filling the screen with water, a TV burning in an open field – which were inserted into the normal TV broadcast by the BBC without any formal announcement or closing credits. As Hall later observed, “These transmissions were a surprise, a mystery. No explanations, no excuses. Reactions were various. I viewed one piece in an old gents’ club. The TV was permanently on but the occupants were oblivious to it, reading newspapers or dozing. When the TV began to fill with water newspapers dropped, the dozing stopped. When the piece finished normal activity was resumed. When announcing to shop assistants and engineers in a local TV shop that another was about to appear they welcomed me in. When it finished I was obliged to leave by the back door. I took these as positive reactions” (Hall, 2005).
visible. Glitch aesthetics are interruptions of the hidden technological order that reveal its operation through its failure” (Myers, 2013b). The Glitchaclysm series of images however are less a reference to the medium of their production and transfer, but rather the context and mode of their display and the culture in which they were formed. The final images – while technologically self-referencing – are heavy with the accents of the techno-futurist narrative and produce a bright gaudy abstract re-assemblage of the original data. Because this process exposes the fabric of the moving image, albeit
damaged, the RGB properties of the digital image become pronounced, chaotic and abrasive an event that is altogether in keeping with the Futurist’s dramatic primary colour experiments, themselves abstract interpretations of colour and form. The difference being that with the digital image there are infinite possibilities inherent in the one object, and that object comes from the stuff of other objects – information. As Benjamin Schultz-Figueroa notes, writing in *Culture Machine* (pdf):

As humans rely more on digital sources of information, and as machines allow for more agency in adjustments of this information, humans interact less with the world than they do with the machine’s possibilities. Unlike film, whose photographic process creates an imprint of an actual world, tweakable through developing techniques but essentially an index of the time filmed, the digital image is infinitely malleable, convertible into an endless variety of formats, codexes, and calibrations. In an image being constructed pixel-by-pixel it is possible to enhance, alter, or delete down to the minutest detail, an unlimited ability to abstract the outputted image from its referent (Schultz-Figueroa 2011).

The signals in *Glitchalysm* are generated from an archive of MP4 files of disaster and apocalyptic films which I catalogued during a content survey for my *Dark Euphoria* exhibition’s central piece, the video supercut *My Endless Dystopian Summer Blockbuster*. The disruptive effect works particularly well with MP4 files as errors in the display codec expose the interpolation of one video frame with another random future-frame a little further along in the sequence. If the video is paused or the play head is manipulated across the video stream in a certain way unintended image constructions are born creating a heightened sense of the original sequence, or in this case – if we remove any reference to the original film – an entirely new and unintended arrangement of data. This is the image as accident, this is the pulling apart of perception, like the Futurists, like Braque, like Picasso. As Rosa Menkman has observed of Virilio’s critique of 20th Century art - that it has been “terrorised by the last century; it has been devastated consecutively by the two World Wars, the Holocaust and nuclear power” (Menkham, 2011, p. 32). This is reality smashed apart by the horror of the technological accident and that art plays an important part in reconstructing that reality:

Virilio explains how WW1 blew reality into pieces and how the cubist painter Georges Braque collected those pieces and put them back together, not just as a formalist experiment or as a destruction of perspective but as an artistic realism appropriate to the techno-cultural present... In the digital realm, what has come to be known as glitch art deals with the digital dimension of error, accident and disaster from different angles, within a larger context of cultural meaning (Menkham, 2011, p. 31).

17 A similar process with the same outcome is known as datamoshing and is much more dependent on a calculated intervention from the video artist (see Figure 39).
And so it is with the contemporary media artist working with disruptive code, with corrupted data, malfunctioning codecs and error ridden machine equipment. The glitch is the reconstitution of the high definition video signal, reality's best simulation. In an age when image fidelity and high resolution image reproduction is the main game, these wildly incoherent – yet oddly satisfying – digital images subvert this agenda and aestheticize the vulnerability of the video codec and resonate in a culture that is itself broken. What the viewer is left with then are barely visible hints of the apocalypse, a vague portent of a future end-of-days scenario witnessed through a veil of corrupted code. The well-ordered structure of the video signal rendered chaotic and imperfect by “malfunctions, faults, breakdowns, aneurysmal ruptures” (Baudrillard, 2005, p. 127). Perhaps we can determine the splash of an asteroid, is that a splice of DNA or a string of viral computer code? Is that who we think it is, riding bareback in the shadow of the Statue of Liberty?

While the music video clip is a well-developed art form and the likes of Chris Cunningham – and his contemporaries, Spike Jonze and Michel Gondry – are regarded as some of its most skilful exponents, the single channel video form remains classical in the sense that it is framed by the boundaries of the screen. Restricted to the compression of the moment and the linear sequence of time it is essentially a 2D construction that cheats perspective with manufactured depth. This exemplifies the genius of the Futurists – and similarly Picasso and Braque before them - that they could so skilfully articulate similar variations in time, space and form within the restrictions of the painted canvas – upon one panel, within one frame. But a more complex visual form is emerging, a progressive articulation of the marriage of sound and vision driven by software and the relative affordability of display technology: projection mapping. This technique commonly involves the processing of multiple video signals designed to project precisely onto a unique physical surface and arranged for the explicit purpose of accompanying a diegetic audio track. There have been numerous recent examples including corporate promotion pieces for Samsung and Toshiba by NuFormer, Perspective Lyrique by 1024 Architecture, and Lighting the Sails on the Sydney Opera House and 555 Kubik on the Kunsthalle in Hamburg by Urban Screen. These works are an extremely powerful blend of the physical space and the body electric in which light and colour and sound seemingly subvert the dimensions of the real. They are startling to witness live and are designed to exploit the properties of the physical space and are typically staged in outdoor public events. The works can be delicate whimsical performances or large ostentatious commercial constructions.
As an extension of what Cunningham achieved within the confines of the 2D form and to build upon what Balla and Russulo were striving to achieve with their theories of simultaneity and synaesthesia respectively, the ISAM project by Brazilian electronic musician Amon Tobin and his visual collaborators is an immensely satisfying blend of the aural, the physical and the electric. ISAM was originally conceived as a concept album, in Tobin’s words “a re-ordering of things around me” via the recording and the tight intricate mixing of captured audio samples into a fifty minute “sound sculpture” (Tobin, 2011). Immediately, one recognises that this is something different – sound reconceptualised and nature captured, filtered and cloned by the machine. To experience this live – as a performance – would require an extraordinary visual accompaniment.

![ISAM by Amon Tobin, Heather Shaw and Vello Virkhaus at the Camp Bisco XI Festival (Ninja Tunes 2011)](image)

The ISAM tour of 2011-2012 was designed by Heather Shaw of Vita Motus Studio in collaboration with Vello Virkhaus of V Squared Labs. Built from a series of large cubes, much like Russulo’s pianist in the Music from 1911, Tobin is surrounded by the blips, scratches, beats and drones of his music as they are mapped onto the surfaces and edges of the staged set. Tobin is in the centre, placed behind a silk screened box in which he orchestrates live percussion and the mix-up performance of his sonic industrial/nature collision. But the graphical designs are not simply diegetic, they do not just evoke the movement or dynamism of simultaneity, they reverberate beyond the frame, beyond the stage. The light is liquid, electric, and not only following the contours of the set but also subverting it via circular curves and patterns somehow visually expressing the
audio which, in the Sydney Opera House where I witnessed the work, was all consuming. This is Boccini’s “intoxicating mix”; this is synaesthesia writ large in one of contemporary performance’s most celebrated sites, this is Russulo’s Music also set in an opera house – the pipes, the vertiginous height, the cathedral type reverence. The fact that Tobin’s work is such an aurally prickly industrial interpretation of his environment, that the visuals are the electrical manifestations of what is a very technologically dependent production process makes the entire project a thoroughly Futurist exercise – in a very classical sense. The hues, tones and preference for light over dark strongly echoes the chromatic paintings of Delaunay and the fascination with electric light – both literal and metaphorical – which so enchanted the Italian Futurist painters and poets of the early 20th Century.

As an art form, projection mapping is not just a diegetic accompaniment to music but a liberating force that merges the image and sound both technically and conceptually via a bristling luminescent synergy. This evolution in live performance, projection technology and sound design signals a significant cultural shift in the theatre of audio visual performance just as the advent of electricity altered the aesthetic and the tone of the streets of the World’s Fairs of Paris, New York and Chicago a century before. It was during this period that artists responded to the technology and used its beauty and mystery to communicate meaning, form and narrative in their practice. Just as Balla’s Rhythm of a Violinist, is an attempt to capture and communicate the rhythm of a concert performance so to would the Futurists be equally fascinated by the potential poetics of electricity. This invisible force – much like music – which had become such a vibrant and dynamic part of the Modernist streetscape inspired artists like Carrá, Boccioni and Stella to produce powerful articulations of the beauty and romance of this new technology. Here light takes on an exaggerated tone, evocative of the tonal qualities of fire – in both hue and contrast – the Futurists attempted to capture every flicker of artificial light. In some instances their work was a throwback to a fractured pointillist style largely abandoned by the early 1900s as they strived to capture the multitude of light sources and their layers of reflection as they clashed and comingled in the dynamic interplay of direct and indirect electrical ambience. This effect was evoked literally in Balla’s early celebration of light and machinery at the Exposition Universelle in 1900 in his work, Luna Park in Paris (see Figure 44) (Ottinger, 2009, p. 89). Here the foreground and surrounding night sky form an encircling black canvas as the sparkling merry-go-round assumes the movement and machinery of urban modernity which would become the focal point of so much of the Futurist’s oeuvre. For Balla, the electric lights of Luna Park In Paris, “seemed to him to be one of the most lyrical manifestations of technical and scientific modernity” (Zippilli, 2009). And so too in Carrá’s 1911 work Nocturne in Piazza Becarria (Ottinger, 2009, p. 93) (see Figure 45), the Piazza and the evening crowd are reduced to a shadowy
landscape, the figures but vague silhouettes as the electricity produces a rich carnival of light. Again the light becomes the dominant feature of the image rather than merely a function of illuminating a subject taking on the properties of an overexposed photograph in which the foreground action is washed out by the bright tones of the electric lamps. Where the Impressionists were concerned with the interpretative depiction of light for Carrá and his contemporaries it was also the movement and the metaphysics of light that most challenged them. As declared in *Futurist Painting: Technical Manifesto*, “your eyes, accustomed to semi-darkness, will soon open to more radiant visions of light. The shadows which we will paint shall be more luminous than the highlights of our predecessors, and our pictures next to those of the museums, will shine like blinding daylight compared with deepest night” (Boccioni, Carrá, Russolo, Balla, & Severini, 1910, p. 27).

Similarly, Boccioni’s *Forces of the Street* from 1911 (Ottinger, 2009, p. 139) raises the viewer’s point of view high into the streetscape thereby making the refraction of the street lamps the primary focus of the image and suggesting the sensation of being
hoisted aloft a camera crane so we become assimilated into the image’s cinematic design of electric lamps and steel (see Figure 46). Yet here the streetlight is cool and temperate in tone, almost neon in its steely complexion so rather than providing illumination the electricity reduces our visibility of the surrounds and becomes the focus of the composition. A lone pedestrian moves past the yellow warmth of a doorway, yet the figure is in shadow, drawn as it is against the ambient light. In these images light is instructive, not merely for the sake of composition or as a device to assist in narrative construction, rather it is the dominant ontological force – a highlight, a beacon, a signal for what lies beneath. A light filled luminescence upon an otherwise dark and cold streetscape.

The inspiration of this approach reaches back to the Paris boulevards illuminated by the arc lights of Russian engineer Paul Jablochov in 1867 that in turn sparked the ambitions of other urban thoroughfares in Europe and the United States throughout the 1870s and 1880s. The World’s Fairs and Expositions during this period were fantastical showcases of technological suprematism attended by thousands of people on both sides of the Atlantic. And while these gatherings were patriotic affairs demonstrating the creativity and innovation of nation states, new developments in agriculture, transportation...
and engineering, it was the wonders of electrification that became the centrepiece of the attraction. Light, which on this scale had previously been associated with some form of combustion or fire, and therefore signalling danger, had not been witnessed in such a welcoming context before and therefore prompted a high degree of wonder and excitement:

The realisation that steadily burning bright light drew a crowd inspired promoters of all kinds – particularly the owners of department stores, theatres, and amusement parks and the organisers of world’s fairs. The Paris Exposition of 1878 closed at dusk, but in 1881 an exposition in the same city drew crowds at night with 1300 arc lights. After 1881 all fairs emphasised dramatic lighting, and many made illuminated towers their central symbols – obvious examples are Buffalo’s Electric Tower (1901), San Francisco’s Tower of Jewels (1915) and New York’s Tylon and Perisphere (1939). Most of the innovations of electric technology, including the electric sign, the flashing sign, the electric fountain, the searchlight, the spotlight, and the floodlight, were first displayed at world’s fairs (Nye, 1994).

At the 1901 World’s Fair in Buffalo, New York, known as the Pan-American Exposition, the controversial inventor and self-promoter Thomas Edison sent his camera operators James White and Edwin S. Porter to document his latest triumph, incandescent light. A glittering show was designed by the Fair’s promoters, The City of Living Light, which illuminated the buildings, thoroughfares and most predominately, the suitably named Electric Tower with 350,000 incandescent light bulbs. Yet it is the Pan-American films themselves that are the most startling documents of this event. Mostly shot at night and initially designed as promotional collateral for Edison Inc. the renditions of these gaudy displays capture in stark contrasting black and white the properties of contained electric light. For the exposition attendee (and we can imagine the Futurists across the Atlantic at the fairs of Europe) such a scene represented a technological feat of what must have been a thing of immense marvel and wonder on the level of the CGI dreaming of epic science fiction cinema, of

---

18 For an in depth account of Edison’s incandescent light shows at the Buffalo fair see the chapter The City of Living Light in Kristen Whissel’s Electric Modernity and the Cinema, 2008, Duke University Press. For extensive archival film documentation visit the Library of Congress’ online repository.
large scale projection mapping and the space porn of the Hubble telescope’s images of deep space today. Edison’s films represented the first time many American audiences outside of New York and Chicago were able to live the experience of electricity and its luminescence. The fact that they did so through the cinematic form is worth noting in terms of this discussion because it signals the origin of the corporate tendencies of the techno-cultural narrative. For the images that were distributed carried the Edison brand – in both the system of delivery (the Edison Manufacturing Co.) and the subject matter (the Edison Electric Lamp Co).

However, the aesthetic properties of these images are also instructive. They depict a dazzling array of illuminated orbs, which through the limitations of the acquisition equipment used to capture them on film, have the effect of throwing the background and surrounding fixtures into a stark soupy blackness. The light, which does not illuminate but shines, shines with a cheerleading brightness for its own technological triumph, is certainly representative of a larger narrative construct than its apparent initial ornamental function. Here the light is the subject, the foreground and the background, without depth, without a horizon. The light is emblematic of an unseen process, a property of magic. Rather than revealing the nature and texture of the physical object the images reflect the aesthetics of shape and form while negating its substance.\(^\text{19}\)

\(^\text{19}\) Examples of these two counterpoints are prominent in latter cinematic history in which the technology is fetishized at the expense of substance through the use of light as an external representation of an internal logic. Particularly obvious examples can be found in science fiction films of the late 1970s as computer generated assets begin their transition into popular entertainment. See *Rollerball* (Jewison, 1975), the light and dark metaphors of the original *Star Wars* trilogy (Lucas, Kershner, & Marquand, 1977-1983) and the neon blue aesthetic of the *Tron* films (1982 and 2010).
Through their cinematic rendering of the Pan-American’s electric light displays, these panoramic films simultaneously enacted and aestheticized technological modernity’s transcendence of the natural order through electricity’s disassociation of light from time. As visual documents of American technological modernity, they reveal how elaborate displays of night-time illumination at world’s fairs and expositions created idealised forms of machine-made night-time vision that demonstrated and celebrated electricity’s ability to extend human perception across space and time (Whissel, 2008, p. 120).

This machine induced sensory myth making fits neatly into the foundations of the techno-futurist narrative. Through Edison’s camera lens, onto Edison’s film, Edison’s other commodified “invention”, we catch a glimpse of the future through a marketing device. And yet at the same time the duality of the moment is represented by what the physical manifestation of electrification meant to the turn of the century public and ultimately what inspired the verve of Futurist’s literature and their raucous use of colour and form.

The representation of theatre goers in Carlo Carrá’s *Leaving the Theatre* (1910) (Ottinger, 2009, p. 155) is exemplary of this verve for electrification: by shifting electric amplification to the human condition the subjects in the frame become fiery avatars of Modernity. Here too the scene is the celebration of nightlife – and the possibilities of nocturnal electrification – which sees the human
figure absorb the electricity of the night and in so doing illuminate the street with their own luminous display. No longer was it appropriate, “to see the human face pink, now that our life, redoubled by noctambulism, has multiplied our perception as colourists... The human face is yellow, red, green, blue, violet” (Boccioni, Carrá, et al., 1910). The association with the dramatic live moving arts is also brought into question here as the dynamics of the La Scala performance and the distillation of meaning and narrative it portrayed are signified by the internal monologue of the snow bound audience. Here the invisible becomes visible, the human consciousness becomes electrical energy.

Perhaps the most telling rendering of this notion of the interior monologue of the crowd and the abstract dynamics of speed and urban modernity emerges in the triptych by Umberto Boccioni, States of Mind from 1911 (Ottinger, 2009, pp. p123-127). This is represented by three panels in which the middle panel The Farewells is flanked by two contrasting panels, Those Who Go on the left and Those Who Stay on the right. Boccioni, clearly influenced by a recent trip to Paris and the work of Picasso and Braque, is in a sombre Cubist mood here.

Although dealing directly with well-worn Futurist tropes such as the machine and the notion of speed by depicting the imminent departure of a locomotive – the black bristling steam engine, the strikes of line denoting movement and imminent change, the receding city of factories and apartment blocks – what dominates this sequence are
the emotions associated with such an event. With this triptych, Boccioni had “renewed the Futurist enterprise: it was no longer a matter of just depicting the speed of the machine or the effects of light, but of transcribing the movements of the soul at the heart of a separation punctuated by three related circumstances (The Farewells, Those Who Go, Those Who Stay) which are each the subject of a picture. The railway station, the train, the journey which all refer to themes which are dear to the Futurists, present the meeting between man and the mechanised world” (Morando, 2009, p. 123).

Passenger and well-wisher, locked in an intimate embrace in The Farewells, are cut adrift by the steam from the locomotive and the burning ambience of a red lamp. A dirty hue of green is all that Boccioni will allow for the figures on the platform, their construction is typical Cubist fare, yet their embrace is whipped up by the steam and light in a soaring display of emotion. In the left panel, Those Who Go, the colours are muted as the train heaves away from the static confines of the platform – telegraph wires above, the city shrinking in the distance – as the passengers, illuminated in the cool interior of the machine, lapse into peaceful hibernation. Here we can almost see the glow of the electronic device, the faint blue ambience of the LCD screen that preserves their link with the past while anticipating the impending resumption of life further down the line, while the figures in the last panel, Those Who Stay, seem almost doomed by their separation from the locomotive and those it carries towards their onwards journey and the future. The third panel is also emblematic of a theme which Boccioni saw as a “fundamental motif of modern life experienced as a state of mind ... the feelings of sadness and loneliness, while civilization progresses in the tangled swarm of the metropolis” (Ballo, 1964). This is emphasised by the distinct absence of light, ambient or otherwise - an anomaly in the Futurist canon and the drooping low rise apartment blocks, their windows dark and mysterious, or perhaps just miserable – lurking in the distance. The central figures of the composition, heavy in their winter suits and coats, recede into the gloom, their minds a swirling antennae of geometric shapes – receiving, emitting, archiving.

While States of Mind may prove an exception to the rule as far as the Futurist colour palette goes, it is significant for my purposes as it represents the two elements of the Futurist manifesto preceding WWI. As evocative exponents of technological suprematism and in the dynamic representation of the psychology and the science of the unseen, the Futurists profoundly foretold the Utopian tendencies of 20th Century technoculture. And while far from being marketeers of technology, the Futurists do use the text of their manifestos and the imagery of their rich compositions to celebrate the object of the machine. This is evidenced by the presence of the technological object in their works - the car, the boat, the railway and the street. But they also give

---

20 Possibly only matched in tone and solemnity by Fernand Léger’s Nudes in the Forest (1911) and Luigi Russolo’s Solidity of Fog (1912).
life to the unseen – the glow of the electric lamp, the vibration of sound, and the code of the
telegraph. The interpretation of the physical and virtual space through synaesthesia and
simultaneism perhaps their most enduring legacy. These visual representations of the physical and
the virtual are important narrative plot points for this study – enablers if you will for the
construction of a visual narrative that begins with the Futurists and the films of Thomas Edison and
endures for more than a century. The artefacts are both aesthetically light and vibrant but also
representative of an evolving symbolic darkness which emerges in the depiction and marketing of
technology and its associated electrification.

When contemporary visual artists such as Cunningham and the designers of Amon Tobin’s ISAM
production skilfully exploit notions of synaesthesia through those very same vibrations, those very
same electrical charges of the Futurist oeuvre they manage to continue a tradition of making the
invisible visible, of reconstituting the virtuality of the Ernst’s “medium” – via something as banal as a
video signal, or a sound frequency or an electrical charge – into a dark euphoric image construction.
What is also occurring however is the inadvertent design of what has become an enduring template
for the exploitation of this tradition of technological amplification in the commercial image design
and product narratives of the contemporary technology company. In other words, the Futurists
inadvertently set out a persuasive blueprint for the ensuing techno-futurist narrative and ultimately
the emergence of a new digital aesthetic in cultural production that has both a light and dark side.

In this chapter I have signalled the very early emergence of the light on dark aesthetic via the
early work of the Italian Futurists who depicted the thrill of electrification both literally and
metaphorically. This is most strongly represented in the works of Umberto Boccioni, Carlo Carrá, and
Giacomo Balla. We have seen how in 1901 Thomas Edison used the public’s enthusiasm for
electrification at the Pan American exhibit in Buffalo, New York to commit to film the light on dark
aesthetic for the very first time. By putting the viewer inside the notion of electrification, Edison used
the cinematic medium to amplify the techno-cultural narrative by promoting his own technology and
public stature.

I will demonstrate in the next chapter how the World’s Fair of 1939, also in New York, would
deliver the techno-futurist narrative in its most explicit form via corporate propaganda films by
Chevrolet, General Motors and Westinghouse. We will also see how this practice has been continued
today by tech companies and software publishers in the promotion of machine intelligence, software
speed and advancements in communication technology. Through the use of symbolic aesthetic
devices such as primary colour relationships, forms of animated electricity and visual metaphor
contemporary advertisers and their clients are promising a bright progressive future space. I will
compare these contemporary practices with another group of works by Robert Delaunay
concentrating on his exploration of chromatic colour and the Italian Futurist’s experiments in
simultaneism particularly the works by Umberto Boccioni confirming the link between early 20th
Century Modernism and the techno-cultural narrative of the new millennia.