

On Prescriptive Technological Modes of Cinematic Research Methods and Artistic Autonomy

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ABSTRACT Ursula Franklin’s delineation of “holistic” and “prescriptive” modes of technology offers a useful lens for viewing cinematic methods of artistic research. As new cinematic tools become available to researchers, artistic autonomy can be impacted by the weight of media infrastructures, which often assign tasks to their users, rendering user behaviours as the outputs of technological systems. A suggested strategy for researchers is to adopt “self-reflexivity” as an inherent aspect of cinematic research methodologies, thereby embedding critical attitudes towards new-media technological environments.

KEYWORDS Technology; technological criticism; new media; prescriptive technology; holistic technology.

This article considers a number of technological modalities insofar as they can significantly shape and define practical approaches towards artistic research. Although audiovisual methods can be valuable companions, the tacit methodological constraints embedded in cinematic technologies can negatively affect the autonomy of artistic research, even shifting the role of artistic researchers towards becoming themselves the studied subjects of farther-reaching industrial scale technological assemblages. Accordingly, practitioners should pay close attention to the nuanced technical and socio-technological aspects of how cinematic research processes and the eventual outputs of artistic research are achieved. Self-reflexive approaches towards engaging with the inherent methodological constraints of audiovisual techniques can

be useful for developing and maintaining the benefits and relevance of artistic research practice within and beyond academia.

As complementary to other forms of research, artistic research can provide meaningful bridges across often disparate disciplines. That is to say, the benefits of artistic research arise from its inter-, trans-, and non-disciplinary nature: its transgressive potential for methodological despecialization. However, arts-based methods of research can appear at times vague and indistinct. Often enough, the perceived validity of applied artistic research methods across wider forums of knowledge production can appear ‘grammatically weak’ within the frameworks of established disciplines. That may be expected from practices of an inherently transgressive disciplinary orientation, but this kind of imprecision of communication is surely compounded by the fact that effectively informative documentation of artistic research processes can be quite a challenge to produce. In addressing such challenges, cinematic methods offer avenues for *the process* of artistic research practices to be ultimately embedded within eventual research outputs. This could be likened to a film whose subject is about its own making, a format in which research methods and the documentation of their processes can become one-and-the-same thing. Of course, such approaches can be novel and may offer rhetorical power reaching beyond some more standardized forms of academic writing – through the exposition of direct evidence for instance – but since all things cinematic are subject to their own received ‘grammatical forms’, effective argumentation can well become impeded by the jargon of cinematic methods themselves.

Science and technology as practiced are not merely sets of neutral methodological schemes, they are social institutions, prone to the same trappings of any other social institutions. From complex graphical interfaces, down to the individual components of single transistors, the technical minutia of experimental apparatus constitute continually evolving sites of socioeconomic and cultural friction. Technologies and their manners of use are subject to various socio-technical modes of expression, and reflection on how one’s research methods are shaped by such dynamics is important in terms of research autonomy, notions of authenticity, and academic integrity in general.

The late metallurgist Ursula Franklin (arguably also a media archaeologist) regarded technology, not so much as collections of gadgets, but as systems of social relationships. Franklin differentiated between “work-related” and “control-related” technologies, and applied

these concepts in terms of their impact on social strata (Franklin 1990). *Work-related* innovations carry the benefit of making tasks easier or more efficient in the process of labour, whereas *control-related* technologies are geared towards the regimentation and maintenance of social hierarchies, often enough at the expense labour efficiency overall.

Franklin went further, categorizing technologies as either “holistic” or “prescriptive” in nature. Within *holistic* technological modes, the principal craftsperson is responsible for an entire production across all its stages, from beginning to completion. *Prescriptive* technologies, on the other hand, impose a limited set of tasks to the practitioner, as part of a larger set of essentially isolated production processes. Whereas *holistic* modes recall artisan clockmakers employing a wide array of skills in-house, *prescriptive* modes can be likened to the assembly-line stations of the industrialized auto-industry. Franklin’s schematic can be useful for investigating contemporary forms of media technology, but as technological systems have evolved, it can become difficult to tell the difference between *work-related* and *control-related* technologies – relative to application, any given techniques can carry both characteristics to varying degrees. Additionally, new-media as practiced can blur traditional distinctions between the producers of products and those receiving the products. At some levels of technological complexity, the difference between ‘user’ and ‘tool’ merely becomes a matter of perspective.¹

As a general guideline for applying Franklin’s schematic dichotomies to otherwise blurry and shifting new-media assemblages, it can be useful to examine the tendencies toward specialization imposed upon individuals within any given subset of a technological system. *Prescriptive* technological modes tend to impose “specialization by process” upon individuals, whereas *holistic* modes tend towards “specialization by product” (Franklin 1990, 19). It is not my intention to suggest that *holistic* is ‘good’ and *prescriptive* is ‘bad’ – submitting oneself to assembly-line production processes can be liberating in plenty of contexts, particularly when human agency and reciprocity are fairly considered. Specialization can be associated with virtuosity and discipline – high ideals, and integral factors in regards to cultural and

¹ In the realm of ‘object contemporary oriented computer programming’ for instance, it can be argued that “[t]he user becomes an object, but at a peculiar position in the hierarchy of others.” (Fuller 2000).

technological evolution. However, the imposition of discipline – whether internal or external to the agency of human practitioners – should be subject to value judgements aimed at the social structures that govern how work is performed, and to whose ultimate benefit. Industrial modes have often devalued *holistic* practitioners as obstacles to the “progress” of capitalist aspirations. The epithet ‘jack of all trades, master of none’ speaks to this.

Within mechanical or informational technologies, externally imposed discipline through industrialization has been known to impose *specialization by process* to the detriment of practitioner autonomy. Where specialization and discipline becomes acutely volatile in the socio-technological-industrial sense is at the site of deskilling labour. This is where workers become reduced to little more than ‘human-servo-mechanisms’, themselves just like expendable easily replaceable cogs in a larger machine. This antique mechanical analogy is well suited to today’s information technologies, where titles of ‘crafts person’ vs. ‘machinery operator’ can hold as adequate descriptions of human agents within contemporary networked media ecologies. Within the prevailing infrastructures of new-media environments, various roles and behaviours are imposed upon individuals at different stages of interaction. For example, one might consider the differences between notions of media ‘art’ and ‘content creation’ as expressions of *specialization by product* and *specialization by process* respectively.

The concept of ‘individual’ can refer not only to human operators within technological assemblages, but also to non-human elements. This extension of the term ‘individual’ should be considered contingent upon the supposed agency of machine elements – technologies as conduits of agency, or as functional agents in their own right. Although this may seem a bit obvious in light of artificial intelligence developments, and how these can blur boundaries of authorship, authenticity, and agency; a broader concept of ‘individual’ may be seen as inherent to electronic media and their mechanical antecedents. All manner of musical instruments for instance stand as points of mediation between an array of participants – from listeners, players, dancers, composers; to materials, processes, systems, and so on. As agents of aural production, pianos, recording engineers, troubadours, and CD-players have more in common than not.

When regarding contemporary cinematic methods of research, it can be instructive to investigate how electronic audio recording technology has

developed in relation to artistic production. A large part of musical practice relies of course on the reproduction (imitation, copying) and variation of existing cultural artefacts and technical methods of production. Recording technology has made the copying and proliferation of audio media ever easier for a broader public, and this has enabled new artistic possibilities to flourish. These *work-related* innovations imply the need for a socio-economic reorganization of what constitutes authorship, individualism (self), and notions of ‘public-domain’; but what has proliferated instead is a host of *control-related* technologies (particularly in areas of commerce and distribution) which seek to maintain prevailing hierarchical norms. This kind of media gatekeeping becomes embedded within media technology tools and impact the autonomy of artists and audiences alike, in no small way shaping how art and technology evolves. All things digital and networked are replete with external controls impacting artistic autonomy and cultural evolution, and these are active sites of socio-technological friction. Questions of who *can* and who *should* ‘own’ music in various internet contexts have long been debated. Such debates were alive and formative in the pre-internet world of audio recording also.

In the 1960s, the famed pianist and recording artist Glenn Gould predicted that advancements in audio recording technology would (and should) provide audiences with greater levels of creative agency within their traditionally more prescribed role as listeners of music (Gould 1966). He noted that studio recordings – although implying distance – brought audiences and musicians closer together, sidestepping concert-hall culture and its structural hierarchies, and bringing the essence of music performance from the studio more directly into the privacy of one’s home. As such, conducting the nuances and general atmosphere of how musical performances could be experienced came under the purview of audience members in a public field of expanded agency. Concert halls, Gould argued, are not particularly good vehicles for the aesthetic experience of contemplative music reception. Through the 20th century mass production of studio recordings, the ceremony and parameters of auditioning music became ‘democratized’ to a certain extent. Consumer Hi-Fi equipment at that time already allowed listeners to adjust the tonal balance (bass, treble, etc.) of recording playback, and many albums of that era were mixed and mastered in such a way as to allow for subjective balancing of the instrumentation to a certain

extent.² Through technological advancements, Gould foresaw listeners gaining increasing control over the tempo, pitch, and sequencing of commercially available recordings within their own listening environments.

At the center of the technological debate, then, is a new kind of listener – a listener more participant in the musical experience. The emergence of this mid-twentieth-century phenomenon is the greatest achievement of the record industry. For this listener is no longer passively analytical; he is an associate whose tastes, preferences, and inclinations even now alter peripherally the experiences to which he gives his attention, and upon whose fuller participation the future of the art of music waits (Gould 1966).

This has indeed become the case on quite a large scale with various contemporary DJ / remix technologies and practices – from turntables, to CDJs, to digital audio interfaces – the divisions and hierarchies between the producer and consumer of electronic media have become more fluid and blurred. This is a reflection of the qualities and possibilities inherent to recording technologies; such technical qualities have developed through vibrant dialogues between artistic practice and media technology engineering. Gould appeared quite optimistic that media technology could reconfigure the role of art in society. That sentiment has become apparent in electronic music cultures, as largely anonymous collectives of artists often freely apply the montage and remix techniques of vibrant cultural production modes – while various industrial technological developments have responded to, provoked, and enabled these kinds of creative directions.

Nonetheless, major industrial-scale media publishers simultaneously strive to artificially limit, block, and enclose the emergent cultural qualities and technical possibilities of new-media. Such control driven initiatives more often boil down to heavy-handed attempts at forcing new technologies to behave as old technologies, for the sake of

² Jazz records of the 1960's often used (2 channel) stereo albums as a way to allow listeners to boost or cut the reproduction of certain instruments – for instance with drums only on one channel, and saxophone only on the other.

maintaining hierarchies, for protecting or expanding (profitable) status-quos, or otherwise capturing and maintaining market dominance.³

This can be seen as the artificial imposition by industrialist institutions of *control-related* technologies upon systems which are more *work-related* in nature. Contemporary networked digital infrastructures can provide comparatively free distribution of music and other cultural objects; and for progressively minded perspectives, this implies a need for completely reorganizing the prevailing monetary structures governing electronic media. Yet as it stands, attempts to own and control media – how it can be produced, distributed, and received – attempt to encircle media-technological developments that appear democratically open and egalitarian in spirit. Although platforms such as [youtube.com](https://www.youtube.com) provide certain openness as media archiving and repository networks, their functions are continually optimized towards conglomerate marketing, Big-Data collection, propaganda, and other features of ‘information dominance’. Even public domain texts are continually targeted as of late to be sequestered behind ‘pay-walls’ and other elaborate schemes of digital enclosure. If ‘borrowing’, ‘renting’, or ‘returning’ a PDF through an online archive seems strange, it’s because PDFs are not printed copies, and web sites are not libraries or bookshops in the traditional sense – yet they are forced to behave as some virtual version thereof.⁴

Internet infrastructures which are collective by their very essence become ever more glossed with barriers set around post-facto privatized commons, and these serve to technically atomize and exploit what would otherwise be public benefits of the technology. *Control-related* technological modes can be located at various attacks on the digital-commons, and they are also a factor in forced obsolescence: obligatory prescriptions to upgrade machines and their software – often more arbitrary and profit driven than actually useful to affected practitioners. Controls are also a very noticeable feature of software that scolds unwarranted user behaviour, or prescribes preset workflows, in the guise of user controlled (or even ‘user friendly’) tools. What can be less easy to appraise however is how controls within technological

³ Sony’s “NetMD” and their MiniDisc format in general is a good example of technologies that were forced into debilitating controls on their functions.

⁴ More recent changes to how archive.org is technically able to function are demonstrative of how technical innovations, in a *control-related* sense can be geared towards curtailing freedom of information.

infrastructures can impact one's sense of 'self' – to the point of transforming it. As with media technology in general, the wider effects of specific controls may be not very easy to notice over time. In the words of author Douglas Coupland, "I no longer remember my pre-internet brain". (Coupland 2018).⁵

Our sense of 'self' is largely defined by our environment, and these environments include the contemporary media ecologies we actively and tacitly participate in. Our senses of collective and individual 'selves' – as they are mediated through 'big-data' architectures – are subject to computational rules of aggregation and processing, and this has a bearing on how we imagine ourselves to exist in the world. Further, through interfacing with such architectures our behaviours and our senses of self-change as we adapt to these often *prescriptive* socio-technological systems. According to media-art scholar Ksenia Federova, "[w]ith the introduction of ubiquitous computing in all facets of daily life, the 'self' increasingly becomes an object of technological application." (Federova 2020).

An interesting (and ironic) feature of this "object of technological application" can be seen in how modern conceptions of the 'self' place a pronounced emphasis on individualism within western cultures. As discussed by philosopher Charles Taylor, attempts at sincerely self-actualizing as "authentic individuals" – who are "true to themselves" – has become a great aspiration of modern citizens. This has been a source of conflict between cultural needs for tradition, and personal needs for becoming unique individuals embodying a sense of agency and mobility. Although "degenerate forms" of this kind of individualism are now commonplace – such as an overemphasis on "self-fulfilment" – this will towards self-actualization represents one of our highest moral callings. Accordingly, "[o]ur moral salvation comes from recovering authentic moral contact with ourselves." (Taylor 1991, 24). But this moral drive to self-actualization seems also to drive a kind of capitalist industrial colonization of self-image. What Taylor refers to as "the culture of authenticity" was born through Romantic era critique of the Industrial Revolution, but today, such cultural aspirations for "living authentic

⁵ The work of Marshall McLuhan and of Friedrich Kittler serve as insightful chronicles and analyses of such effects; arguably from a 'media archaeological' perspective.

lives” now seem readily employed as fuel for contemporary industrial capital ventures.

Romantic era conceptions of ‘authenticity’ and ‘sincerity’ are formative to modern conceptions of ‘self’ as these developed through 18th and 19th century industrialization. As the Industrial Revolution brought mechanization to new levels of scale and significance, Romanticism forged some decidedly counter conceptions of both individualism and ‘nature’ – often framing those aspects in opposition to industrial progress. Besides reacting against the “dark satanic mills” of mechanization – its environmental and spiritual devastation – the Romantics would also react against what Taylor calls “the primacy instrumental reason” as expressed through Enlightenment ideals. Today, this can be noticed as hyper-rationalized thinking becoming foundational to our socio-technological environments. In the face of looming environmental catastrophe, it is science and technology institutions which are worshiped with faith for finding solutions, even though it is hard to deny that science and technology got us into today’s environmental and social crises in the first place. As Taylor notes: “[t]he primacy of instrumental reason is also evident in the prestige and aura that surround technology, and makes us believe that we should seek technological solutions even when something very different is called for.” (Taylor 1991, 10).

The Romantics critiqued *the primacy of instrumental* reason by centring powerful irrational forces that reside on the edges of human understanding. Sublime nature, both external and internal to individuals, became a source of originality and of growing ideals of artistic autonomy. As autonomous agents, with special access to the sublime and ineffable forces surrounding and interpenetrating human experience, artists took on the role of researching and charting ‘the unknown’, the psychologically dangerous, and the spiritually volatile. Similar ideals of individualism and originality stemming from Romanticism continue to pervade contemporary concepts of ‘self’, but these often appear as instruments of re-enchanting capitalism. In contrast to Romantic methods of confronting the sheer terror of being, modern media technologies seemingly try to hide their own messy - dangerous - sublime natures behind disembodied images and simplified interfaces. This presents a type of ‘mind body problem’ for computing technologies, in which all things corporeal seem to become gradually more occluded behind boundaries of the human-machine interface.

As documented by architectural historian John Harwood, IBM's computing design program of the 1950s solidified new human-machine interface paradigms – paradigms that are largely taken for granted today. When IBM deployed their design team's "parlour & coal-shed" interface concept to computing architecture, they concealed the inner workings of the machines, screening those off into the realm of unseen backrooms – so as not to distract computer operators from their assigned tasks. This would be an essentially *prescriptive* and *control-related* technological architecture in which front-end and back-end operations were strategically divided. Within such a paradigm, data-entry-clerks need not question or be involved with the technical 'magic' behind the curtain (Harwood 2011). With the advent of personal computers and graphical-user-interfaces, such *parlour/coal-shed* computing paradigms have become largely entrenched, forming isolational "counter-environments" of compartmentalized processes within a broader technological *milieu*. The *parlour/coal-shed* paradigm is of course quite a classist and colonial metaphor which, at its core, could be seen to embody a pervading corporatist divide-and-conquer ethic.

As modern smartphones increasingly approach an aesthetic of disembodied image (or more to the point: assimilated body extension), and as they reach functionally towards becoming something like portable 'dummy terminals', a normalized *parlour/coal-shed* architecture keeps server-farms and massive (ecologically dubious) computing facilities well out-of-sight and out-of-mind for users. Nevertheless, it stands that the dreams of the internet are brutally material in essence. *Coal-shed* tendencies to obscure the inner-workings of computing are, of course, echoed by the vast unseen labour involved in the accelerationist manufacture of modern media devices.

Countervailing the drive toward isolating and deskilling consumers are related but alternate trends in so-called 'prosumer' technologies. Kit-based, modular, and otherwise DIY-branded technologies are often 'open-source' to a certain extent, and modern manufacturing advancements have driven down the costs of wider public participation. Cinematic methods of artistic research have certainly benefited from the faster, cheaper, and more accessible aspects of modular kit-based audiovisual technologies, not to mention the internet as a connecting infrastructure. The past few decades have seen remarkable advancements in terms of bringing once exclusive cinematic tools into the hands of a much wider public, and this is arguably beneficial to

autonomous artists and their practices. From desktop video to prosumer full-frame digital cameras, the domination of big-money institutions in setting the methods and rules of cinema has been significantly challenged. Modern digital cameras with motion-picture capabilities can breathe new life into old 35mm still-camera lenses, and non-linear editing is now commonplace on inexpensive non-specialist computing platforms. It's like a dream come true for those of us who previously had access to little more than consumer VHS as a video-art medium.

In my own artistic practice, cinematic technologies have provided a basis for interdisciplinary work, 'visual music' and 'live cinema' performances for example. Through this work, I have seen new technological possibilities come and go, some never to return. My artistic research practice has become *media-archaeological*, and this has to do (in part) with an understanding that media-technological acceleration tends to prematurely obsolesce available methods. As mentioned above, forced obsolescence places users into the prescribed role of continually upgrading and adapting to innovations. Often, these appear to be pseudo-innovations stemming from profit motive efforts to reshape media ecology infrastructures. This has a bearing on artistic research that makes use of cinematic forms insofar as artistic autonomy is impacted by technological restraints. Granted: working within formal technical constraints is often what art is all about, but artistic research engaging with cinematic media should try to do so with an understanding of the technological infrastructures that they will tend to rely on. In pursuit of such understandings through artistic practice, *media-archaeological* perspectives embedded within research methods should implicitly query how and why media ecologies are subject to change over time.

To be useful as research, artistic practice requires methodologies that can maintain some intrinsic levels of autonomy, in part to ensure their relevance as unique and complementary forms of knowledge production. Autonomous artistic practice implies a *holistic* approach to guiding a production process from conception to completion. The machinery of cinematic production will carry various overlapping modes of *holistic* and *prescriptive* technologies, with *work-related* and *control-related* processes embedded at various stages. Technological utilities often embody efforts at shielding outward knowledge of what they really are, and so it is useful to practice some awareness of how

aspects of how one's functional notions of 'self' and 'authenticity' may be affected. For instance, social media and chatbots may have far more to do with nuanced data collection of user behaviour than anything else; this implies the need for reflection on one's role as an agent of data when engaging with such applications.

What seems apparent is that industrial pressures will favour hyper-specialized individuals over general public media literacy. What becomes important to note here is the blurring of authorship, ownership, agency, and autonomy within media-technological interactions; as well as the tendency to prescribe and impose *specialization by process* upon human elements. Using Tiktok or Instagram as part of a research method is perfectly valid – of course – but it is helpful to understand and reflectively communicate the nature of one's *prescribed* and potentially over-specialized role on such platforms.

Holistic approaches are those in which practitioners can meaningfully participate throughout key stages of a production, from planning to outcomes. That's not to say one has to control every aspect of a work, far from it, it is just a question of awareness. As a form of awareness, artistic research methods should be "self-reflexive" of their physical and technological realities to some degree. For embedding *self-reflexivity* into artistic research methodologies, a number of approaches can be explored: 'defamiliarization' strategies, the use of glitch artefacts, or humour for instance. Film theorist Steve Dillon stands as a champion of *self-reflexive* cinema; his book *The Solaris Effect* (Dillon 2006) is an insightful study of analogue and digital filmmaking techniques which have been used by cinematic practitioners to bring self-awareness to their art. Dillon also provides some helpful commentary on the world of American Realism films which try to 'pretend that they are real'. He writes: "Classical Hollywood cinema is typically characterized by 'invisibility' and 'transparency', by a continual refusal to acknowledge that the film is actually a film." (Dillon 2). Here Dillon suggests a condition of neurotic denial suffered by films, in which they so desperately seem to want to really 'believe' in their own synthesized realities.

Dillon's comments on the neurotic self-denial of Hollywood films may have some bearing on contemporary 'artificial intelligence' applications, as these often seem more geared towards simulation and subterfuge than to effectively exploring their true inner nature. If chatbots can be said to

know anything about how they work, they are presumably not allowed to talk about it. As new cinematic automations emerge, now often under the banner of A.I., it is important for practice-based researchers to be aware of, if not how they actually work, then how such tools can often prescribe tasks, instrumentalizing and impacting the artistic autonomy of their users and our own malleable senses of self.

In conclusion, knowledge production through artistic research implies levels of exchange and reciprocity between agents. As Franklin points out however, reciprocity is often “ruled out by design” in technological systems (Franklin 49). As cinematic tools rely heavily on prevailing technological infrastructures, it can be challenging for researchers to circumvent the imposition of controls designed to limit reciprocity, often manifesting through *prescriptive* technological modes that affect research autonomy. This is compounded in how technological changes can serve to blur received the notions of ‘self’, ‘authenticity’, and agency of media technology participants. Countervailing strategies for dealing with such challenges may include adopting more *holistic* technological modes of production, and the building of *self-reflexive* awareness of evolving technological realities into one’s cinematic practice.

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O Impacto dos Modos Tecnológicos Prescritivos das Metodologias de Investigação Cinematográficas na Autonomia Artística

RESUMO A distinção feita por Ursula Franklin entre modos tecnológicos “holísticos” e “prescritivos” oferece uma perspetiva útil para observar os métodos cinematográficos na investigação artística. À medida que novas ferramentas cinematográficas se tornam acessíveis aos investigadores, a autonomia artística pode ser condicionada pelo peso das infraestruturas mediáticas, que frequentemente atribuem tarefas aos seus utilizadores, acabando por moldar os seus comportamentos como se fossem produtos dos próprios sistemas tecnológicos. Uma estratégia sugerida para os investigadores consiste em adotar a “autorreflexividade” como elemento intrínseco das metodologias cinematográficas de investigação, integrando assim uma atitude crítica face aos ambientes tecnológicos dos novos média.

PALAVRAS-CHAVE Tecnologia; crítica tecnológica; novos média; tecnologia prescritiva; tecnologia holística.

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