

Cultures in AI/AI in Culture: A NeurIPS 2022 Workshop Position paper

Georgina Born, October 4, 2022

Recommender systems as cultural technologies: steps to an expanded definition of culture in/and AI

Recommender systems have drawn considerable criticism in recent years. In this mainly conceptual paper, rather than address fairness, accountability or transparency in general, I draw on recent work on music streaming and music recommender systems (MRS) as curatorial cultural technologies engaged in the formation of users' musical tastes and repertoires (Born, Morris et al 2021), using music to raise conceptual challenges. Designating MRS as cultural technologies highlights how they mediate musical experience across populations and over time. Moreover, since consumption is a key phase in the reproduction of musical taste, MRS play an influential role in the evolution of musical cultures at large. If algorithmic systems are socio-technical assemblages composed of human and nonhuman agents, and if their 'cultural features play a crucial role in the functioning of algorithms and how they change over time' (Seaver 2015: vii), then we can conceive of the algorithms driving MRS as encultured socio-technical systems that, in turn, mediate wider musical cultures.

So far my remarks recapitulate the two dimensions of 'culture' in the workshop rubric: **AI/culture 1**: that is, 'cultures shaping AI', or how the institutional (commercial industrial, academic research) contexts within which AI is developed, as well as the demographics and worldviews of the scientific professions making up the workforce, influence the technologies produced. Nick Seaver's work and his forthcoming book are surely definitive in charting AI/culture 1 for MIR and MRS; (and to cite previous research pursuing a similar stance: my book *Rationalizing Culture* (1995), an ethnography of the world-leading computer music research centre IRCAM, portrayed an earlier formative phase of the global academic research cultures fuelling music AI). And **AI/culture 2**: 'AI curating culture', in terms of how AI systems like MRS curate and shape cultural production and consumption. Here a rich vein of work by writers such as Eric Drott and Robert Prey has unveiled how streaming platforms and their MRS form the experiences and subjectivities of users.

To introduce the perspective of culture, I will argue, weighs against the tendency in industry and, surprisingly, some critical research to address recommendation's effects primarily individualistically. This claim deserves scrutiny, and I will try to justify it shortly. But in addition I propose the need for two more conceptions of culture relevant to our work – and to critique, and to computational politics – both developed since the 1980s, and both relatively overlooked.

Before getting into that, it may be helpful initially to disentangle two meanings of 'culture' implicit in the workshop's core aim to understand 'the role of culture in AI and AI in culture'. Since Raymond Williams' crucial contributions tracing the evolving historical meanings of the term, which were elaborated by cultural studies, 'culture' has been understood primarily in two senses: in the anthropological sense of culture as 'a whole way of life', with a stress on the shared meanings and ideologies, practices and behaviours of a social group – this can be equated with AI/culture 1) above; and in the sense of the 'arts and learning – the special processes of discovery and creative effort' (Williams 1958: 93). In relation to MRS, this is the meaning invoked by AI/culture 2) – although AI/culture 2) can be more broadly equated with AI's curation of 'a whole way of life' too. Williams stated, 'I insist on both, and on the significance of their conjunction' (1958: 93), and mediated through AI, this conjunction is precisely what this workshop addresses.

I want to draw out two additional notions of culture by discussing briefly the strengths and limitations of contributions by three important writers – Robert Prey, Eric Drott and Luke Stark – each of whom adds greatly to our understanding while also pointing to the necessity of these additional concepts.

All three writers adopt Foucaultian approaches to theorising how, through digital platforms' deployment of machine learning techniques to analyse large amounts of data, individuals are not only 'subjected to identification practices, [but] are also subjectified by them' (Prey 2018: 1088). Prey and Drott focus on music streaming platforms and MRS. Through readings of Pandora and Spotify, Prey shows that different

platforms have ‘particular ways of “seeing” the individual’ and of enacting the data subject (1088). Both platforms ‘downplay the role of demographics in recommending content’; both reject ‘fixed markers of identity. Increasingly, the individual music listener is understood as having many music identities’; [listeners] are ‘multiplicities, or in Deleuzian terms, endlessly subdividable ‘dividuals’’. Both platforms reify ‘both the subject and the object of media consumption’. And yet both ‘do not conceive of individual music listeners as immutable subjects to be modeled... There is no ‘real’ to be represented. I am an urban travel enthusiast with a penchant for the Delta blues ... until I am not. You are a suburban lover of smooth jazz ... until you are not. In short, streaming platforms promise the potential of processual identity, of the perpetually ‘becoming- individual’; and here Prey invokes the philosopher Gilbert Simondon, arguing for a shift in ‘focus from ontology to ontogenesis – from individuals as a given to individuation as a process of becoming’ (1095). Note that Prey is diagnosing the functioning of the platforms as they project and shape what their users’ identities are. But he goes further, taking what might be called a strong Foucaultian stance: for the performativity of the platforms is taken to bring the projections into being. ‘Personalized media do not only “see” the individual, they enact the individual into being’. And he cites Cheney-Lippold (2017: 8): ‘When identity is formed without our conscious interaction with others, we are never free to develop – nor do we know how to develop’ (1097). For Prey, the special quality of algorithmic individuation is that it is illegible, it ‘remains hidden from view from the subject’ (1096). With the strong Foucaultian stance, Prey commits to the idea that these digital assemblages not only project a certain configuration of the user but bring it into being, via ‘enactment’ or ontogenesis. This is a view of performativity about which Judith Butler expresses caution; for as she reminds us of J. L. Austin’s idea of ‘perlocutionary’ performativity, ‘A politician may claim that “a new day has arrived” but ... the utterance alone does not bring about the day, and yet it can set in motion a series of actions that can ... bring the day around’ (Butler 2010, 147–8).

Drott (2018), in turn, elaborates another version of this Foucaultian stance, adding a powerful Lacanian angle. In his words, ‘streaming services hail the user not as an individual, but as an individual discomposed into a succession of dividuals. To say this is a fantasy is not to deny that such dividualization actually occurs. Nor is it to impute ontological primacy to the category of the individual, itself an object of ideological fantasies that extend from the bourgeois liberalism of the nineteenth century to the neoliberalism of the present. Rather, it is to acknowledge that in addition to being dividualized, would-be users of streaming services are actively enjoined to imagine themselves as such – ... not as coherent wholes but as beings dispersed across a variety of spaces, situations, and occasions. A form of subjectivation continues to take place. But it is one that disavows the very category of social being, the subject, which it endeavours to fabricate’ (Drott 2018: 350). What is striking is, again, the focus on the music platforms’ effectivity in bringing into being the very subjectivities they proffer and portend – but, in contrast with Prey, the forms of subjectivation described by Drott are accompanied by his telling disavowal of any ontological primacy of the individual, and by a denunciation of the platforms’ disavowal of social being. Nonetheless, the shadow of a strong Foucaultian stance is perceptible – for the focus on individuation, and on the effectivity of the platforms’ operations, lends itself to this reading.

Luke Stark (2018) enunciates a third version of this Foucaultian account of the ‘subjectivation-via-datafied- individuation’ promulgated by digital platforms in his research on the long history of interactions between computation and psychology. ‘In our epoch of digital control, the merged norms and design tenets of computation and psychology govern the ordering of people and things. As such, we need a clear articulation of the emotional stakes of this politics and the scalable subjects it has made, if current asymmetries of power, equality, and justice are to be overthrown’ (8), he declares. And he goes on to chart the history of ‘a psycho-computational complex, and of the psychometric analysis and classification of ourselves understood as scalable subjects’, from the founding of psychometrics in the late 19th century by Frances Galton – notorious for his application of ‘statistical quantification and correlation around personality’ (9) to eugenics – to the Cambridge Analytica scandal. Stark concludes that ‘psychometric models of personality, behavior, and emotion proliferate in the devices and dreams Silicon Valley sells us, shaping our experience of digital technologies and social media platforms – and by extension, our understanding of ourselves’ (31). But, he adds, ‘the influence of the psychological sciences on digital platforms is... doubly occluded: hidden from users by their baseline incorporation into the technical affordances of platforms, but also often veiled from the designers of those systems themselves. Technologists draw from psychology without much sensitivity to the controversies and contestations which exist within it as a discipline in its own right’ (30). In contrast to Prey and Drott, then, Stark adds a

deeper account, a ‘history of the present’ (Foucault), of the collusive relationship between psychometrics and computation – and in this way, more than the other writers, he is mapping AI/culture 1: the scientific and professional cultures and worldviews that have shaped AI historically.

It’s at this point that I can return to the two additional conceptions of culture that I suggest might be missing. First, we’d gain from bringing in the idea of material culture: for my contention is that large parts of what Drott, Prey and Stark are analysing are the material nature and technical operations of the algorithmic systems or socio-technical assemblages they’re probing. They are deciphering how these material cultures project and perform the individuated data subject – or for streaming platforms and MRS, the listener. Their focus is on affordances; yet in their strong Foucaultian readings they risk eliding the design and materiality of the platforms with actual uses, practices and effects. Citing UCL Anthropology’s definition, material culture involves ‘the empirical study of how people make, exchange and consume objects,... [and of] how the material world is also central to the constitution of what it means to be human’.¹ Material culture, then, as ‘**AI/culture 3**’ – as an analysis of what goes on *inside* the technology?

A second observation at this point is that, in their strong Foucaultian readings, there is a way in which these writers get fixated on the very individuation they are setting out critically to diagnose. It’s as though there is no ‘outside’ to this individuation, as though they collude in its reification. Perhaps I’m being unfair, in that Drott’s insistence on critiquing ‘any ontological primacy of the individual’ and on the platforms’ ‘disavowal of social being’ do point towards an ‘outside’. Stark, too, hints at such an ‘outside’ by mentioning ‘current asymmetries of power, equality, and justice’ and the urgent need for a ‘computational politics wedded to emancipation and human flourishing’ (32). Yet the irony is that by describing the effects of AI/culture 1 on the design and functioning of digital platforms (my AI/culture 3), critical work of this kind can be sucked into a vortex of individuation, as though that is all there is. The question is: how can we do critical work charting the material nature and operations of powerful digital assemblages while not conceding that this is all there is to human life? One response might be to notice the (photographic) ‘negative’ or imprint of what is being systematically denied, absented or occluded by these assemblages – what kinds of sociality and social relations are withering, or being starved, or are subject to attrition, weakening or death by their operation.²

This takes me to my proposal for **AI/culture 4**. Let me state clearly: these writers’ insights into the data-driven projected (in)dividuation of users and their re-aggregation via ‘normation’ (Stark’s Foucaultian term to convey the platform’s view of the mass of users, calculated via ‘quantitative aggregation’ (19)) are crucial. But they are not the whole picture. They do not tell us about the cultural and social location of actual users, and how this enters into (mediates) how users encounter and engage with these unprecedentedly opaque, correlative and normative techniques. This requires a further step. Recall the distinction in material culture studies between ‘how the material world is... central to the constitution of what it means to be human’ and ‘how people make, exchange and consume objects’, between the nature of materiality and the experience of that materiality – for the two are not the same.

In this light, the final conceptual and methodological point I want to propose is that we should add a fourth dimension of culture, ‘**AI/culture 4**’, to our discussion – a dimension that demands to be registered if we are probing the entanglement of culture and AI applications like MRS. AI/culture 4 highlights the cultures mediating the consumption and use of any technology or artefact, and it resolutely resists reduction to an aggregate of individuals. Strikingly, this facet appears the least addressed in existing critical and industry literatures even though it featured as a key conceptual and methodological innovation both in STS and in classical cultural, media and communication studies during the 1980s and 90s. AI/culture 4 was innovative in that period in setting up important resistances to the technological and material (STS) and textual (cultural, media and communication studies) determinisms prevalent at the time (and that still characterise some humanities disciplines). In a radical challenge, writers from Stuart Hall, Jesús Martín-Barbero,

¹ <https://www.ucl.ac.uk/anthropology/about/material-culture>. I know this argument for ‘AI/culture 3’ will provoke discussion with Nick Seaver, as he takes a different view!

² I have a story to exemplify what I mean here, but limits on length prevent me from telling it. See <https://www.theguardian.com/technology/2022/sep/30/how-molly-russell-fell-into-a-vortex-of-despair-on-social-media>.

Angela McRobbie and Dick Hebdige to Madeleine Akrich and Bruno Latour insisted, from their distinctive theoretical positions, on the irreducibility of the material artefact or technology (or text) *in use* to the technology (or text) as *conceived and implemented by the design (or creative or authorial) process*. Hence, Akrich's foundational paper 'The de-description of technical objects' (1992) innovated in the theorisation of socio-technical design in STS by insisting on probing the gap 'between the designer's projected user and the real user, between *the world inscribed in the [technical] object* and *the world described by its displacement*' in actual use (Akrich 1992, 209, italics in original). Although Akrich sets out this conceptual stance, she dwells on how technical design configures the user; thus, in her case study of the development of the photoelectric lighting kit, she argues that 'the materialisation and implementation of this technical object, like others, was a long process in which both the technical and social elements were simultaneously brought into being ... [Thus] the kit represented a large set of *technically designated prescriptions* addressed by the innovator to the user' (1992, 210–11, italics in original).

A further conceptual step and an even more compelling framework is offered by Martín-Barbero, since – as my colleague Gustavo Ferreira has recently shown (Ferreira 2022) – his contribution to theorising cultural mediation takes 'into account the broader cultural conditions within which technologies like [MRS] are adopted' and used (Ferreira 2022: 2). In this way Martín-Barbero goes beyond formulations like those of Akrich and Latour, which abjure notions of culture, in the process resisting the reduction of use or consumption to the individual. As an example, take Martín-Barbero's analysis of 'the clearest and most easily identifiable expression of Latin American nationalism and mass popular culture [from the 1930s to the late 1950s]: the cinema of Mexico' (Martín-Barbero 1991: 638). His contention is that 'cinema was the living, social mediation that constituted the new cultural experience, and cinema became the first language of the popular urban culture' (639). Martín-Barbero's emphasis is on 'how the great majority of the public perceived and experienced these films', and he continues: 'This experience, more than the talent of the actors or the commercial strategies of the entrepreneurs, was responsible for the success of films. Going to the movies was not a purely psychological event, but the point of encounter between the collective lived experience generated by the Revolution and the mediation which, even though it deformed this experience, gave it social legitimacy' (639). Here one can see exemplified the vital role of analysing consumption (or use) in historical terms for Martín-Barbero through an account of contemporary social, cultural and political conditions mediating the consumption of Mexican film. This is the kind of model, I suggest, we should be taking when trying to understand, and researching empirically, the engagement of users with AI socio-technical assemblages – an approach that is fully historical and that does not elide design and material operations with experience and use.

But a final challenge is thrown up for this model, AI/culture 4, by AI itself, and I finish by posing perplexing questions. If we accept the broad framing set up by Akrich and Martín-Barbero of the need to attend conceptually to the distinctive phases of design/engineering (AI/culture 1), material (or textual) operations (AI/culture 3), and use/consumption (AI/culture 4),³ and how culture infests (or mediates) each phase, then AI poses special conceptual and methodological challenges back to the model. This is because Akrich (and earlier STS) took as their material paradigm single, often physical 'technical objects' or 'artefacts' – in the music domain, for example, classic heroic 'technical objects' like the Roland TB-303 bass synthesiser, which accrued mythological status for the ways in which it was creatively re-invented in use. It's a classic story: 'The TB-303 (TB standing for "Transistorized Bass") proudly left the Roland stable in 1981, originally designed to play bass accompaniment for solo guitarists. But notoriously difficult to program and producing a less-than-authentic acoustic sound, the 303 was swiftly relegated to a curiosity in second-hand music stores, where it languished for years – until Phuture, a trio of under-funded Chicago musicians, picked one up for a giveaway price and set about experimenting. What the TB-303 lacked in user-friendliness and authentic bass tones it more than made up for with its quirky idiosyncrasies and insanely over-engineered tweaking potential via the half-dozen, front-panel rotaries. In 1987, Phuture released Acid Trax, a 10-minute squelch-fest that helped define the Acid sound, a sound that would quickly cross the Atlantic to become a pivotal component of 1988's nascent rave culture that would come to be known as the UK's "Summer of Love"...'⁴

³ By not mentioning AI/culture 2 at this point I do not mean to downplay its interest or worldly importance!

⁴ <https://www.roland.co.uk/blog/tb-303-acid-house-flashback/>.

But what of the obdurately complex, black-boxed, non-legible, mathematically-based assemblages of machine-learning mediated platforms? These are ‘technical objects’ of a different kind, far from the tractable physical ‘artefact’ (TB-303), with its immediately, intuitively responsive knobs, faders and sonic output which lend themselves to creative improvisatory mis- and ab-use. So even if we accept that real users’ engagements with AI-fuelled digital platforms is immanently culturally mediated, if the socio-technical assemblage is opaque and resistant to intuitive engagement, could it be that with AI there is *less* distance than in Akrich’s and Martín-Barbero’s models between, on the one hand, design and projected use (AI/culture 3) and, on the other, actual uses (AI/culture 4)? Does the strong Foucaultian analysis capture actual experience with AI applications? Is AI closer to epitomising the government of consumption, and the effective subjectivation of users? I think we need to discuss this – and I will learn from the discussion.

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