



# Why thinking about the tacit is key for shaping our AI futures

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Four years on from the discussions on ‘Tacit engagement in the digital age’ at the Conference in Cambridge in 2019, further developments in AI agency as seen in ChatGPTs, LLMs and social media platforms, show both potentials and limitations for their benefits to society. We have reached a crossroads in our relations and conceptions of machines and the impacts this is having on us as social beings and on our environment. Back in the 1970s, the engineer Mike Cooley (1987) said that the more we pass on to the machine, the less we leave to ourselves, and this also applies to our social capacities as we communicate via machines.

A major consequence of social media platforms has been termed, “identity crisis”, wherein the world is perceived as fragmented, inward looking, and as a zero-sum struggle in which the interests of one group are set off against those of another, with no accountable body one can turn to. The reduction of human agency to AI agency is a technological trap where any constructive criticism of AI can be re-framed by big tech as being anti-tech, rendering it difficult to build solidarity to counter a dominant blind faith in technological solutions for complex social problems. To counter this zero-sum game of alternative realities, cultivating a humanistic or human-centred perspective would nurture a belief that it is possible to shape AI agency that serves people and societies.

In contrast to how we anthropomorphised the automaton in the past, we anthropomorphise the ‘interactions’ we have with and via AI tools and robots ascribing to them intelligence, sense-making, and emotion. During the 1980s and 1990s, a focus of discussion regarding the consequences of AI systems in working life was on deskilling, of even highly skilled professionals such as applied mathematicians. Today, creative processes, e.g. art and writing, are being automated, and our ways of connecting and making sense of each other, which makes us social beings, is being altered. We are

unknowingly reconfiguring ourselves to fit the AI tools that are promoted to fit to us. We see the consequences of this in how our engagement with social media is creating fractures in our societies as AI algorithms are making it hard for us to hear (listen to) and move with expressions of difference.

Calls for greater transparency and visibility of the workings of the ‘black’ or ‘magic’ box of algorithms may themselves not resolve the issues we are facing. What is meant by this, for whom, and to what purpose? The ever increasing consumption of off-the-shelf tools tends to be popular because we do not need to know their internal workings in order to apply them. In Japanese Bunraku Puppet Theatre, the puppet masters and the puppets are all fully transparent to our view, yet we find ourselves attending to the puppets who become visible to us as characters whilst we simultaneously render their puppet masters ‘invisible’ (Gill 2015).

At an environmental level, consider that a single Bitcoin transaction uses an average of 1173 Kilowatt Hours (kWh). If we consider that the average monthly electricity usage for a UK household is 350 kWh, that is enough to power the typical UK home for more than 3 months at a cost of roughly £125, based on a fixed cost of £0.11 per kWh. We have a (possible) paradox of small children planting trees to “save the planet”, whilst their siblings at university are consuming the planet to produce fake essays (Nadin, this volume).

What is needed is critical thinking, cultural perspective and practices to shape our AI futures rather than being shaped by one conception of the machine. In the evolution of AI, communication and being human has been reduced to fit the model of communication as transmission and fit the ideal of a universal machine with discrete states and discrete rules, reducing human behaviour to a physical symbol system. This led to the dream of automated thinking machines, and to achieve this, the 1980s and 1990s saw a zealous mission to extract tacit knowledge (the knowledge of how to do something skillfully, make judgements, and make decisions) out of the ‘heads’ of ‘experts’ and make it into data for machine processing. Tacit knowledge was re-framed as a ‘bottleneck’ rather than an important quality. Data mining of humans, and increasingly of animals, has

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since been applied to human gesture, behaviour, emotion, bio-medical aspects, and creativity, and we are in danger of being automated ourselves.

Looking back, part of the problem is that tacit knowledge has long been considered as lying within the individual. What is needed is to understand how tacit knowledge emerges within our engagement with others, as a dynamic process. This is called Tacit Engagement (Gill 2015).

What do we mean when we say ‘we can’t see the wood for the trees’? The expression marks the fact there are always different levels of awareness when we look at what is in front of us. For Polanyi, who coined the expression ‘tacit knowing’ or ‘tacit knowledge’ in his seminal work *The Tacit Dimension* (1966), these multiple levels together form tacit knowing, as a comprehensive entity. Knowledge for Polanyi is above all personal: an embodied act, and always mediated.

But what happens when people *share* tacit knowledge—knowledge of the same comprehensive entity? This is where a concept of performance is helpful—it captures the interaction of self and community, how each shapes the other. Conventionally the Polanyian idea of tacit knowledge has been positioned within an individual’s perceptual processes, and applied to an individual’s skill. Collins (2010) recognises that when it comes to culture itself, tacit knowledge of an individual is irreducible as this is the kind of knowing where one needs to know how to be a member of a society. For Wittgenstein, to know what a word means lies in knowing how to use it with others, and one cannot understand how words mean in other cultures unless one knows how to be a member of that culture. In *Philosophical Investigations*, he said we could never understand a Lion even if we spoke Lion if we do not share the embodied experiences, emotions, and cultural practices of the Lion’s world. In her work on Tacit Engagement (Gill 2015), Gill takes the concept of tacit knowing out of the loci of the individual and positions this within our processes of engagement with others, as temporal, dynamic, rhythmic, constantly shifting, emergent, sensory; enabling us to engage with our differences. It is about ‘knowing how’ and ‘knowing when’. In so doing, the concept of Tacit Engagement is questioning the individualist (autonomy) premise of AI which processes ‘data’ extracted out of individuals’ cognitions (including ‘implicit knowledge’), bodies, and behaviours. In Tacit Engagement, tacit knowing lies in collective performance, in our ‘being with’ others in culture and our environment.

Ideas of performance also help to reconnect art and science after their separation in the 19th Century, which is apt as the arts in general play a key role in questioning and reframing our understandings by directing attention to the tacit assumptions, norms, and expectations embedded in all cultural processes.

It is easy to see how the interaction between who we are, and the environment that surrounds us, becomes a

key issue in a digital environment. Engagement with and through social media networks and mobile apps are reshaping the notion of community and family and affecting wellbeing, as well as the cultures of the workplace and institutions. The exponential rise of big data flows in networked communications is causing vast gaps in translation, confusion about what is true and false, and mistrust of ‘experts’. This is resonant with the parable of Plato’s cave (see Lamondt and Brandt in this Volume) from two millennia ago: people are chained in a deep cave, unable to turn their heads to look around, and there is a large fire blazing behind them which casts shadows. They can only look ahead at the cave wall seeing the shadows. These are cast by the movements of those behind the fire carrying things back and forth. The sunlight revealing the exit is behind the fire, and those chained can only reach it by breaking free. Those that succeed discover that the shadows were actually being created by real things and they might seek to go back to tell this to those still chained. However, those people may not believe them; for them, those shadows are real. Plato’s parable is about our continuous strife for reality, and it is resonant for our times where in the shadows of machine thinking, we are unable to engage with difference. This challenges us to shape AI futures rooted in us as interdependent persons, not as numbers, parts, sensory mechanisms, genes, or individual bodies.

Husserl (1931) developed the concept of intersubjectivity. But this applies most usefully to systems that are more ‘friendly’, more ‘understanding’, more ‘empathetic’, more ‘human-centred’: it is a concept based on the projection of the self, about placing ourselves in the other’s shoes and understanding how we would react were we him/her/them. Hall (1976) showed how concepts of sympathy and empathy tend to be rooted in this identity transference, assuming or necessitating a sameness of culture. In disembodied communication, sympathy and empathy are not about engaging with difference. When we move in rhythm with others with our bodies, or use our voices, we can empathise with difference (Gill 2015). This is distinct from using language on its own.

Dancers, musicians, actors, and participatory artists, who necessarily need to perform together in order for dance, music, drama, and participatory art to exist, have been leading in questioning and experimenting with the limits of disembodied and distributed networks and exploring alternative modes of what an interface might mean for tacit engagement. For example, in participatory installations which only come alive with the physical togetherness of participants, dancers are exploring how to blend virtual and physical presence as collective action (Boddington in this volume). This is challenging the mining of our body as data, re-appropriating our relationship to our personal body data, questioning who owns it, has rights to use it and who controls that usage.

Much of contemporary AI systems are based on an abstract information-theoretic view of communication as transmission and on the universal machine of discrete states and discrete rules. Human experience is reduced to fit this view. This has led to design of most of the interactive interfaces we see around us, requiring the definition, a-priori (that which pre-exists the event), of schemas, e.g. categories of gestures according to which some gesture or movement is acceptable and recognisable for the interface (e.g. gesture interface) to function.

Thinking from a performance perspective, what might ‘relation’ and ‘interaction’ mean if instead of taking this reductive view of communication and defining such schemas of objects in the world (gestures, vocal sounds, speech patterns etc.), one thinks of the world as consisting in ‘dense responsive media’ e.g. a field of sound—sound permeates all space, and can be treated as extended. A responsive field of time-based media can vary according to the activity of entities (people, plants, objects, etc.) immersed in or engaged with the field. As Sha says (in *Walking on Water*, in this volume), the water in a pool (field of sound) does its thing no matter how you wriggle your fingers, or what you use to stir it. This ensemble approach to relation between human and machine allows for the possible emergence of forms of tacit engagement between participants as their body fields form ensembles with the dense responsive media (Gill and Sha 2005).

The 2019 conference on Tacit Engagement in the Digital Age (Cambridge) opened with a discussion on ‘*How can Collective Intelligence Orchestrate Tacit Knowledge of Different Kinds?*’, with Geof Mulgan reflecting that the deepest form of tacit is *wisdom*. This echoes Mike Cooley’s idea in *Architect or Bee? The Human Price of Technology* (1987), where wisdom is a prerequisite for positive action: ‘Data suitably organised and acted upon may become information, and information that is absorbed, understood and applied by people may become knowledge. Knowledge frequently applied in a domain may become wisdom, and wisdom the basis for [normative] positive action.’ He called this the ‘cybernetic transformation’ (Fig. 1) [Fig. 4, cf. Cooley, 1987, p. 12].

Carl Rogers famously quoted Polanyi (Kirschenbaum and Henderson 1989): “There are limits for making something more explicit than it has been.... The problem arises in analysing and trying to put together explicitly a thing which has been broken down into parts. The tragic thing about it is, analysing and putting together is the most powerful way of getting truth. I mean our whole biology almost exists in analysing and putting things together. So that we are in difficulty because nobody can tell us whether what we have spilt up can be put together again or not; and if we build up a culture recklessly on the assumption that only things are valid which can be broken into parts—and that putting

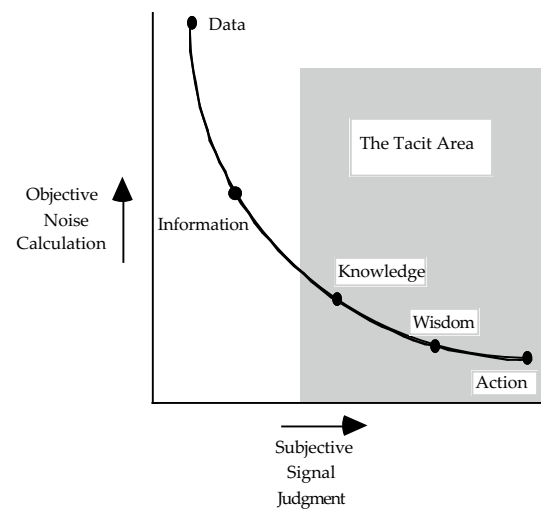


Fig. 1 Cybernetic transformation

together will take care of itself—we may be quite mistaken, and all kinds of things may follow.”

In addition, I would like to close with a quote from Wynants’ article, *Wonderland*, in this volume, taken from Prigogine and Stengers, *Out of Chaos*:

“Today we no longer have the right to pretend that we command a unique position from which we can view the truth about the world. We must learn not to judge different areas of knowledge, culture, or art, but to combine them and to establish new ways of coexistence with those who enable us to meet the unique demands of our time.”

In 2019, I asked Michael Byrne to design the poster (See Guest Editorial, Part 1 of this Volume) for the conference ‘Tacit Engagement in the Digital Age’ based on his research on elderly dancers, which reminds us that a key way knowledge is mediated, is via the body. When an elderly prima ballerina demonstrates a step to a younger prima ballerina, the older woman’s movements appear more subtly communicative and graceful than the younger dancer’s, which although as skilful in technique, are not as personally inhabited. The poster depicts the elderly prima ballerina moving with a silhouette, digital image, of the younger prima ballerina.

Such skilled movement embodies a wisdom, and we see wisdom in those who are skilled in listening and engaging with others and helping to build bridges of understanding where these are broken or do not exist. Often in our cultures, we consider our elders as imbued with wisdom and defer to them for guidance. My late mother, Ajit Gill, was such a person, and all who met her felt her presence and described her as ‘wise’. Even the way she cooked, and she was a masterful cook as recognised by anyone who enjoyed her food, was like the elderly prima ballerina, subtle and graceful. She

used to say to me that you must never rush the ingredients as they cook, you must attend to them, listen to them, and look and care. Each time she repeated the making of a dish, its repetition was unique and delicious. Family and friends reflect on how she brought people together and through her wise presence fostered the atmosphere for ideas to flourish, without which the AI and Society Journal may never have come into fruition. Her way of being with others, which made them feel she was a part of them and they were a part of her, captures the idea of tacit engagement.

I dedicate this Volume to my mother Ajit K Gill (1941–2022), with a poem by my friend and poet, Jane Liddel-King.

## 1 Let's say not being there

I mean at the crematorium  
 Among the brave smiles and  
 Bright seconds of vivid recognition  
 Wrapped round the cut of her absence  
 Let's say we're in the kitchen  
 And she's making tea at the end of a meal  
 She's also made down to last lentil  
 Let's see her lift black tea and crushed  
 Cardamom  
 Add cinnamon and cloves fresh root  
 Ginger and a pinch of pepper  
 Into a pan she's used for years  
 The measure are in her fingers  
 Like songs in her head  
 The water a prayer forming as she stirs

And the kitchen is spice heaven  
 Now she goes easy with milk and sugar  
 As if she were soothing a child  
 And her chai takes all of us back to the  
 First taste of pleasure  
 And how she made sure there were always  
 Spices waiting for tomorrow

**Data availability** Not applicable.

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