

# The Technological Gaze

How we see audiences, and the unmodern sublime

Carina E. I. Westling

Department of Media and Communication  
University of Bournemouth, UK

## ABSTRACT

In addressing the question of how we think and model the participant, user or audience for interactive systems, we initiate an interrogation of who we think we are, and what we think technology is in relation to who we think we are. Future-proofing innovation in design thinking must involve serious thought about conceptual models for how we see ourselves as makers and audiences, since they precede design solutions. Here, lessons and transferable insights from live performance and experience design can inform design thinking in digital materialities. This paper will explore the nature and direction of the technological gaze on audiences or human system users and interrogate its influence on design. Subsequently, it introduces observations from live event design that modifies *techne* with *metis* to invite the sublime as an integral part of immersive experience.

## CCS CONCEPTS

• Human-centered computing ~ Interaction design theory, concepts and paradigms • Social and professional topics ~ Cultural characteristics

## KEYWORDS

Interaction design, immersive experience, the immersive aesthetic, the sublime, experience design, agent modeling, audience agency, conceptualizing audiences

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## 1 Introduction: Technology as mirror and stage

As virtual scenographies expand into our everyday lives via open computational networks, distinctions between knowing and naïve audiences and users, and between applications designed for entertainment and a wide range of services are blurred or even erased. This is a critical enquiry in the present moment, and networked technologies face simultaneous scrutiny and expansion as increased awareness of their potential for use and misuse signals the end of the digital modern. Rather than focusing exclusively on the handling of personal data, an under-researched line of enquiry is the form of our representation as data objects. Our ‘performance’ within always-on interactive systems that gather data more or less continuously collapse the private into the public [16] with now-known consequences for privacy, transparency and public discourses. The wider ramifications include the nature of discourse, and questions around the ethical and functional viability of the present paradigm for user modeling. How participation is conceptualized in performance and live events has profound effects for aesthetic as well as pragmatic dimensions of experience. Design for digital platforms is similarly affected, although the immediacy of this relationship between concept and experience is reduced by mediation. Understanding the implications of how the role of human participants is conceptualised and shaped through representation is critical, as it scales to the extent of networked distribution.

### 1.1 Technology as mirror and stage

Technology holds up a mirror in which we see and imagine ourselves as agents of modernity and change. Information technology, at least from the book to the present, has informed prevailing visions of what it is to be human. Outlining a history

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of how the subject position was inflected by technology in the twentieth century, Kittler describes how the image of ‘so-called-Man’ changed as we moved from the continuity of written longhand to demassified thought by way of technologies of discretization, storage and distribution [10]. The hand-written book or letter embodies continuous thought as it is expressed, in contrast with the typewriter’s percussive rhythm. Later, digitized communication made the basic elements of articulated thought discrete and open to remediation. Through inflecting modes of expressing and receiving mediated communication, technology shapes the experience of thinking through materials and reflects back an image of who or what we think we are.

Superficially, the digital modern suggests - or suggested - malleability; shape-shifting and liberation from the “weight of reality” [19], but events in recent years have raised concerns about the accumulation of personal data and unfettered ‘cybertyping’ [7, 9]. The apparent fluidity of form at the interface level seems dichotomous to the ever-tighter descriptions and definitions of identities [19] at the infrastructure level of interactive systems, as well as the wider polarization of identitarian tribes in digitally mediated discourses. The business models of social media platforms and other free-at-the-point-of-use interactive systems incentivize both; the data economy depends on thin-sliced demographic categorization and churn, making these phenomena features, not bugs [9]. Privacy concerns and emerging regulation of data collection and storage are terminally at odds with predominant business models in the data economy. The present dependency on data brokering and exploitation, and the malpractices that are gradually becoming public knowledge, will not abate through regulation unless alternative models for both data representation of system users and monetization are developed; it is an ethical issue as much as it is economic and technological.

Another representational legacy exists that may offer alternatives that are functional in these dimensions. Design for performance and theatre and the effects it seeks to produce on stage and in the auditorium have long been subject to critiques of representation. Its theories and practices are anchored and informed by embodiment which, when thought through participatory performance, yields useful models for incorporating audiences as ‘moving parts’. This is meticulously explored in Punchdrunk, who produce experience design across physical and blended reality that can be analysed as interactive systems. The vision of their founder, Felix Barrett, is based on multi-sensory theatrical spaces and the company is now expanding their digital R&D activities in the UKRI-funded Audience of the Future programme. Based on in-depth ethnographic research with Punchdrunk and live audiences 2011-2014, the study discussed here [21] investigates how their live practice can inform the conceptualization of audiences in design for blended and virtual scenographies. Punchdrunk’s rich background in embodied design and

experience presents an unparalleled foundation for the new R&D facilities that they are creating for StoryFutures Industry Centre of Excellence in Immersive Narrative at their premises in Tottenham, London.

This new research centre and contingent activities in the broader creative and academic sectors herald new perspectives on participatory audiences in interaction design. The critical framework introduced here for thinking and representing audiences (or system users) beyond the present paradigm for software infrastructures and monetization models is informed by theories of representation in theatre and performance. It is based on analyses of the relationship between stage and auditorium as a window on the moving present in theatre and performance to interrogate ways of being that are relevant to interactive systems.

## 1.2 The subject, the event, and the subject-event relationship

As interfaces become less screen-bound, the focus for design has turned towards embodied interaction. Philosopher Elizabeth Grosz reminds us that the living body is the seat of inventive practice [8]: the viscous continuity of embodiment resists the modern, and grounds the creation and reception of meaning. Critical methodologies from theatre makers can enrich perspectives on experience design, particularly with regard to how participation is conceptualized and modelled. Punchdrunk and other theatre companies that create immersive productions have expanded scenography to not just envelop but include the living bodies of their audiences.

Punchdrunk audiences move freely within the scenography for three hours, interacting with the performance environment and its actors at close range, as opportunities to do so unfold. Their audiences move at pace, with intent, and in intimate proximity to the set, props and the actors, and typically have strong emotional experiences in response to the performance. The representation of audiences to themselves, and how the conditions of possibility for the audience role within the broader scenography (including the auditorium) is usefully understood through the distinction between Artaud’s Theatre of Cruelty and the *Verfremdungseffekt* of Piscator-Brecht’s Epic Theatre. Deleuze’s critique of the latter in favor of the former [6] recognizes that Artaud challenges the subject position of audience members through positioning them within the work, or immanent to the event, while Piscator-Brecht’s work allows a critical distance to the event. Punchdrunk position their audiences and their actors in immanent subject-event relationships to each other, sharing both frame and plane. Other makers of immersive experience design that work with immanence include Blast Theory, creators of *Desert Rain* (1999), *A Machine to See With* (2011), and *Operation Black Antler* (2016) and The Mill, who produced *6 x 9* (2016) for Guardian VR under the direction of Francesca Panetta. These works position the audience in an immanent subject-event relationship to the designed environment.

The Chinese Room, makers of *Dear Esther* (2012) and *Everybody's Gone to the Rapture* (2015) work with screen-based interfaces and design the subject position as an absence that invites audiences to project themselves within. While they are designers of mediated rather than live experience, The Chinese Room share many methodological approaches with designers like Punchdrunk, notably the extreme attention to narrative detail and the design of the audience subject position as one of absence. This approach allows the participant or player to enter the hyperreal storyworlds unencumbered by avatars, imperfectly rendered human representations or other superficial identities. In large masked Punchdrunk shows, audiences yield their everyday identity while within the performance space through separation from the company they arrived with and wearing identical white masks [21]. In both cases, participation 'beyond' identity is central to the designed affordance for emergence at the site of the participant.

Misconceptions of the creative potential of audiences in live events, whether in alignment with the designed affordances of their envisioned role, or engaged in the kind of fertile caprice that de Certeau calls 'delinquency' [4], produces immediate consequences. Networked and mediated at scale these are harder to predict and locate, but the impact of social media on democratic processes as they are instrumentalised for the ongoing 'information war' gives us some examples. Most, if not all of these flow from the idea of 'identities', whether fake or real. Whichever aspect of this wider problem is interrogated, inspection suggest that changes are unlikely to originate within the industry. The problems associated with the present paradigm for representation of human system users have multiple dimensions. Representation of 'identities' is so central to interaction design and its monetization that changes at this level would bring profound change.

The objectification – i.e. the rendering-as-objects – of human system 'parts' in the design process and its implementations creates in-built, systemic flaws. The conceptualization and modelling of agency as agents in interactive systems, rather than as an element in its own right, is an ontological misstep. It fails to accommodate the dynamic volatility of human components when they form crowds, or when the social identities and compacts that hold individuals are loosened. These and other effects of scaling and perspective on 'system users' are intuitive to designers of live events. In such a comparison, it is clear that the practice of modeling human participants in interactive systems as cumulative data objects is not based on an empirical understanding of human audiences at scale, but is an ideological methodology at root.

### 1.3 The technological gaze

The problem of thinking aesthetically, functionally and ethically about participation as a feature in interaction design must start with an interrogation of gaze; its point of origin and relation to its object, and how its nature and directionality informs design processes.

In live performance where the maker and audience share the same plane and frame in time and space, they are immanent to each other and any actions that occur in interaction are equally 'real' to both designer and audience member. This perspective shapes the design process; every decision is informed by the experience and knowledge that the designed encounter will need to include emergence within its scope, and its immediate impact on unfolding events.

By contrast, a remote vantage position in relation to the audience allows for their reduction, by way of gaze, with the precise and unfolding detail and consequence of the designed situation similarly reduced. This can be thought as a transcendent relationship between the subject and the observed event, where the designer occupies a 'gods-eye' point-of-view, removed from the event. In a traditional performance situation on a proscenium stage, the transcendent subject-event relationship is also possible between the auditorium and stage, as the audience is afforded a safe distance to any drama that takes place within the frame of the proscenium. The reductive view that is produced by distance affords a sense of containment and the illusion of control, but with this also a reduction of the impact of variability and consequence.

The inherent radicalism of the immanent subject-event relationship, in comparison with the transcendent one, lies in the immediacy of consequence. Neither party in the exchange or interaction is afforded the illusion of complete control over the other. The modelling of audiences with this in mind underscores the need for tactical response capacity in the designed experience and shapes every subsequent decision. We might call this *metis*; tactical skill or even cunning; a readiness for pragmatic and emergent responses.

Another skill; *techne*, is broadly the skill of craft, applied to a material that can be known and understood. A remote or transcendent perspective on audiences in interaction design, i.e. one where the designer and the audience or system user do not share the same frame in time and space, affords what might be called a technological gaze. Its logic is driven by *techne*, with a view on its materials (which include the audience) that assumes knowability and at least some degree of control. A perspective on live audience as they are perceived by designers of live events presents a challenge to *techne* that can contribute to a paradigmatic shift in design thinking and design solutions by way of audience modeling.

### 1.4 Objectification as a product of gaze

The technological gaze that is embedded in digital networks and infrastructures relies on objectification, i.e. the rendering of components in the design schema as data objects, sufficiently defined and stable for the present paradigm. In interaction design including human components, legacy heuristics skew towards agent-based modeling, i.e. understanding audiences as stereotypes with extended characteristics based on past behaviours [2]: The digitization of system users or audiences

thus objectifies them by default already at the functional level, by and through their rendering as data objects.

In the physical world, objectification occurs through ongoing representational and socio-economic processes and transactions that confer status and power from the objectified to the objectifier. It does not occur because the objectified are regarded as less than human; the act of objectification is powerful precisely because they are human. The most brutal examples of how the transactional aspect of objectification confers status are slavery and human sacrifice, but digital interactive systems also objectify: trivially at the local level, but scaled globally. The power transfer, much like the revenue generated within the attention economy, is incremental and systematic. It reaches critical mass by scale, and distributes the effects of this transfer across the population at large. Each transaction is small, and occurs as an exchange between 'users' or participants who submit their human ability to perceive, interpret and process to a system that instrumentally reduces them to a data object, more narrowly defined with every transaction, which is subsequently aggregated and brokered. Each individual transaction is small but yields power to the objectifier.

Meanwhile, the computational capacity that is embedded within the system to survey, order and objectify human participants constitutes an executive position, exercised through the placing and holding its object within a conceptual frame and form. At scale, the systemic rendering of human participants as data objects becomes an expression of power, embedded within digital infrastructures.

The objectification that occurs through ever-tighter demographic modeling is obscured by naturalization within the design schema. Even though the misuse of personal data is now relatively well known, it remains widely accepted for a perceived want of alternatives. Since the issue flows from a central approach to user modeling, alternatives are likely to be found outside of the present paradigm. In a pervasive media environment, it is even difficult to trace the outline of the problem space. This is perhaps more easily grasped when contrasted with prevailing forms of resistance, e.g. various approaches to gaming the system based on 'shape-shifting' or identity fraud. Digitization renders the representation of human users uniquely open to abstraction both as data objects and online actors, vanishing the consequential body. A key aspect of power is the capacity for changing your circumstances, and in digital and administrative milieus, this includes form and location. The system environment is diffuse in both these aspects, making the technological gaze on human system participants near-ubiquitous; 'omnipresent' or god-like. Resistance narratives in the digital milieu typically seek to reverse this power relationship by way of shape-shifting, which can be understood as an illicit 'power grab' within the system environment and in relation to the technological gaze.

Deprioritizing identity within the art-work as in the work of Punchdrunk and other artists employing similar devices fulfils

twin objectives; it affords agency a fluid shape so that audiences may 'shape-shift' and it destabilizes the audience subject position. Instability of form and a destabilized subject position are key to immersion as a function of vertigo in relation to the subjective experience of possibility space [21]. The dynamic expression of agency within the overarching design scheme is an expression of force or power. Framed as shape-shifting, it is also a reversal of the subject-event relationship that dominates the present paradigm in digital interaction design. The idea of shape-shifting in relation to power is clarified in contrast with its opposite, i.e. conditions of possibility that bind the subject to place and in form. If digital infrastructures are to support dynamic expression of agency, such as can be observed in the live 'interactive systems' of Punchdrunk, we might rethink the idea of agents, and instead think participation as agency. Towards realizing this, the technological gaze on human participation within interactive systems might turn to physics rather than social science. To designers of live events, agency manifests as a dynamic fluid as audiences move within designed spaces and conduits for action and interaction. The shape and properties of agency, thought this way, might be articulated as pressure, velocity, and volatility as analogues of movement and experience.

## 2 The sublime and immersive experience

Immersive experience in an artwork, especially where this involved embodied interaction, can be understood as self-abduction, building on the work of Chow [5] and Bishop [3]. Chow argues that the audience enters into voluntary 'capture' within the artwork, thereby completing it. Bishop introduces the idea of self-exploitation, underscoring the 'work' undertaken by audiences in, particularly, participatory and relational art. Both perspectives are informed by Artaud's vision of a Theatre of Cruelty, which Machon draws explicitly on in her discussion of the phenomenology of immersion in Punchdrunk [14]. A framework, informed by Artaud, for comparing virtual and physical immersive scenographies can be found in Deleuze's discussion of the transcendent vs. the immanent subject-event relationship and the dogmatic image of thought in *Difference and Repetition* [6]. In Deleuze's analysis, Artaud's destabilization of the auditorium and the subject position of the spectator brings the critique of representation to the self in ways that the *Verfremdungseffekt* and its associated critique of representation do not. This perspective comes to renewed relevance in interactive design schema in the immersive aesthetic; a category that in its broadest understanding incorporates virtual reality (VR), blended (XR) or augmented reality (AR), and arguably also service design platforms such as social media. Alternative ways of thinking and modeling the human 'component' are salient to issues of privacy and monetization in service design, but the

main focus in this section is the type of production or application where audience experience is central to the design.

A comparison between live audiences in performance events and remote audiences on digital platforms shows profound differences in thinking and practice in the two fields, as well as obvious similarities. Central to their differences is the relationship between connectivity and exposure, and its directionality. In live performance, audiences are viscerally immediate as a force of motion and emotion, and their cohesion, velocity and direction change with attention, elation and arousal, giving visible form to Klossowski's argument in *Living Currency* [11] that mediated passion not just underpins, but drives production and exchange. This is explicit in Punchdrunk's immersive theatre, where experience is produced by the extension of agency as embodied interrogation and articulation of space, driven towards encounters, often by frustrated desire.

Exposure is two-way in the encounter: the interface, i.e. the scenography across which audiences connect with the work of the company, exposes both to each other. As immersion is regarded here as the voluntary submission to such exposure, the cultures that make this possible and desirable on both sides of Punchdrunk's interfaces are included in the research. Punchdrunk famously require their audiences to participate actively within 'theatre machines', but agency within a coordinating structure is also at the heart of the culture behind the scenes. The company extends significant agency to the hundreds of makers that are involved in each production, from set building to acting and stage management. The complexity that this way of distributing agency affords makes possible the creation of deeply layered scenography that resolves in further detail the closer you look or explore. Like *mise-en-abîme* creates the illusion of an endlessly repeating space in art, this possibility space creates uncertainty of how far the illusion extends in Punchdrunk's work and supports immersion. Company and audience members discuss this particular aspect of the company's work in terms of vertigo and awe, suggesting the sublime, and underscore how it invites the extension of agency on both the company and the audience side of the experience.

This engagement mediates connectivity and exposure in Punchdrunk's work. As networked technologies become enmeshed with the social and physical realities of the unbound world, exposure follows connectivity also in the digital domain. Now facing the end of the digital modern, we are beginning to see how this is manifested in digital systems and their social contexts. Code infrastructures are vulnerable to cumulative entropies that create security risks in their social context [20], and pervasive networked computation exposes societal infrastructures and the body politic to agencies of technological and human origin. Digital technologies has immense capacity for innovation, but the tension between connectivity and exposure remains one of critical concern. Underscoring the dependency of innovation on stability, Grosz says: "It is this

relative stability and orderliness, predictability, that is the very foundation or condition for a life of invention and novelty, a life in which pure repetition is never possible." [8]. Paradoxically, we may find more stable representation of the human component in interactive systems by accepting, embracing even, its fundamentally unstable nature. Conceptualised as agency, its containment and boundary conditions can be interrogated in Punchdrunk's masked performances and other designed experiences based on crowd scenography that can be modeled as conduits and spaces

The aesthetic dimension of design in relation to boundary conditions can be explored in the sublime, an experience outside of conventional beauty that is made aesthetic by being bounded or 'removed' by frames or distance. In the context of interactive systems, their very extent and the smallness of the human participant within them invite reflection that highlights the contrast between the sublime discussed by Kant, and that described by Lyotard. This comparison hinges on subject-event perspective in ways that elucidate the nature of immersive experience; 'within', subsumed, and at the cusp of being overwhelmed. In Rancière's analysis, Lyotard reverses the Kantian sublime that frames and contains the threat of dissolution or oblivion in vastness with reason [18]. This analysis of the sublime in Lyotard vs. that of Kant is broadly symmetric with the tension between an immanent perspective ('within' the moment or event, on the same plane) and a transcendent one, i.e. from a removed vantage point that allows for the idea of dominion and comprehension.

The distinction sheds light on the relationship between makers, players and audiences in live events and that between digital makers and players and their remote, digitally mediated audiences. The shared frame in live events disallows the occlusion of exposure as an inevitable consequence of connection, whereas the perspective on audiences in digital design affords the illusion of control as it removes the maker from both the instantiation and immanent consequence of their work.

### 3 Affording audiences dynamic representation

Punchdrunk and other producers of durational live events work with audience agency as a critical, dynamic and unstable material, which places demands on their scenography to have the response capacity to meet and negotiate the force of free-roaming audiences in their hundreds, night after night for extended runs. First-hand accounts from company and audience members show that the craft and detail on the producer side of the interface supports immersion as an active state on the audience side – not because it fools audiences into believing the illusion, but because it tells them, as it unfolds throughout the performance, that their suspension of disbelief and commitment of agency to the experience will be met and supported. Even in near-darkness, audiences perceive the

commitment to and creative investment in the storyworld by the company and rise to meet it. Even though they are new to the experience, they are able to read the social dimension of the material, and it informs their embodied experience of space. Chiming with Grosz, their living bodies, sensate and social, produce experiential space. The social dimension is central, as immersion is a state of voluntary entrapment, reliant on the perception of support by and in the joint art-work.

Acknowledging agency as a force that cannot be controlled but rather invited, shaped and directed with the active, emergent consent of the audience produces immersive conditions of possibility. In Punchdrunk's 'theatre machines', the social is present in every detail through attention to detail. Interviews with audiences reveal that it is legible even where the scenography is practically subsumed in darkness. Digital work such as that by The Chinese Room exemplify how detail attention communicates also across screens. Although the space is virtual, the idea of scenography applies, particularly in the frame of environmental scenography.

The history of theatre and performance usually focuses on the stage, but if we look at scenography and performance with the audience in mind, we can also trace how their role has been configured and negotiated almost as clearly as if it were spoken out loud. In *The History and Theory of Environmental Scenography* [1], Aronson describes the spatial-architectural arc within which immersive theatre sits, while McKinney and Palmer's edited volume *Scenography Expanded* [15] At this junction, the relationship between makers and their audiences becomes one of critical importance. The immediacy of live performance reminds all who are involved in the production of a play or spectacle that proceedings occur within a space of readiness that is accommodated and supported by the interest and compliance of audiences. Immediacy, with immanent consequences, creates persuasive incentives to be prepared and to have response capacity, in case events do not unfold as planned or desired. It encourages an empirically grounded way of thinking about audiences; what draws their attention, how they respond, and what they might do in the emergent present.

### 3.1 Challenges in and to software engineering

Through rendering as data objects, the representational form of digital audiences is almost infinitely flexible. Data objects and forms can be replicated and have no natural end-time. Their fluidity and distance from gravitational consequences afford near-unlimited and instantaneous scaling, extended through distributed networks. In a transcendent subject-event relationship, a reductive perspective on system users or audiences is inevitable. 'Seen from afar' due to scaling, only crude features of the object of study stand out, and so the general dominates the particular: the nuance disappears. When

the event comprises human users or audiences, this poses critical questions.

From an empirical point of view, crowds are, for the purpose of interaction design, arguably better treated as a different ontological object than individuals, real or modeled. Consider the case of big data, which is used to model and predict the behavior of individuals. Subdivision of crowd behavior yields little insight into how constituent individuals might act at a local level. Conversely, the multiplication of information about the actions of individuals at the local level will not yield a particularly useful picture of how a theoretical crowd that they form might act. Big data produces information that is neither fish nor fowl, as far as insight into individual or crowd behaviours goes. It is also dependent on circular queries, as it is typically gathered on platforms designed to harvest information that is a) useful to the platform owner and b) 'harvestable' and 'processable' within the means and affordances offered by the platform. When applied to interaction with remote audiences via the platforms that generated the data, the margin for error in the quality of the information is significant, increased by linear scaling, and unchecked by immanent feedback. By contrast, errors that result from overly reductive (i.e. simplified, crude, and lacking in complexity and nuance) understanding and modeling of audiences in live performance will be immediate and evident to those delivering the performance.

Moving away from the idea of modular identity towards the continuities and flows that can be observed in crowds might enhance user modelling ethically and functionally. Properties like volatility, viscosity, force and pressure, expansion and flow are consequential to the quality of designed interactions. In live events, the audience component is often discussed as a fluid or force: an empirically grounded perspective that can demonstrably produce experiences of a high aesthetic and functional quality. Similarly, the human component in interactive systems could be modeled as a dynamic fluid. Such a paradigm shift in user modeling would present opportunities and challenges to software engineering and digital design, with potentially profound and benign consequences.

The new facilities being developed for the StoryFutures Academy may see enhanced methods both for R&D and audience modelling. It will be a lab and storyworld in one, where design for audiences is researched against the background of Punchdrunk's rich experience with live performance. There and in other labs, the design process must include human agency and cognition in the consideration of critical materials. From there, ontological questions about the nature of the human component in interaction arise that might be guided by Latour's definition: "A weaver of morphisms – isn't that enough of a definition?" [13].

## 4 Conclusion

While technologically extended and blended storyworlds offer vertiginous possibilities for makers and designers in theatre,

performance and games, the present paradigm for modeling agents within digital infrastructures is stultifying, both at the technical level and in the sense implied by Rancière [19]. Alternative ways of thinking and modeling audiences are possible, viable, and demonstrated by Punchdrunk (and others) in their work with large live audiences. These methods are rooted in observing and approaching audience agency as a critical material and an essential component of both the design process and the outcome.

The influence of this perspective on audiences on design comes to expression in every aspect of scenography and interaction. It invites close engagement with storyworlds and holds designers and audiences within a shared frame of meaning that supports joint commitment to the art-work. Considering audiences immanently opens a critical space in which the exposure that is inherent to connectivity can be negotiated on an emergent basis. This negotiation, teetering on the fault line of reason, is central not only to the sublime, but to immersion. With human agency a core component of interactive systems, modeling it without mediation by the idea of individual agents is arguably more empirically grounded. Furthermore, conceptualising audiences as dynamic and unstable within physical and digital scenographies might aid creative management of both experience and risk. Inviting *metis* to experience design where human participants are intrinsic 'moving parts' draws focus to the tension between connectivity and exposure, otherwise easily occluded in digital design.

Interrogating the technological gaze thus asks designers to think of audiences not as known, but as unknown entities and sources of force. The emphasis in Punchdrunk's design process is on meeting, engaging with, and holding this force as it unfolds in real time. With an immanent understanding of audience agency, interaction design for embodied and remote participation may fold digital technologies into the cultural fabric of making in history. The interdisciplinary *techne* that Jussi Parikka calls for in experience design spans a continuum of materialities from "hard" or physical components to "soft" or symbolic "signs, meanings, attractions, desires" including the "processual" [17], work of human cognition.

In live interaction design, the processual, human component is manifest as an embodied force. A technological gaze on this component that borrows from the *metis* of live experience design would do well to relinquish the idea of modular personalities in favour of one that considers crowds as a different object, and a differential force.

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