Performative Experience Design

Jocelyn Spence
Digital World Research Centre
School of Arts
University of Surrey
Guildford
Surrey, GU2 7XH, UK
j.spence@surrey.ac.uk

Stuart Andrews
Digital World Research Centre
School of Arts
University of Surrey
Guildford
Surrey, GU2 7XH, UK
s.andrews@surrey.ac.uk

David M. Frohlich
Digital World Research Centre
School of Arts
University of Surrey
Guildford
Surrey, GU2 7XH, UK
d.frohlich@surrey.ac.uk

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Abstract
This paper categorises key HCI literature that engages with performance theory or practice according to a taxonomy that puts the user at the centre of the analysis. This taxonomy has revealed three strands of research that use performance to address HCI and interaction design at the most fundamental level. We use these strands of research to map out what we have identified as the emerging field of Performative Experience Design. This field, which lies between HCI and performance studies, presents an extraordinarily rich potential for the design of interactive systems.

Author Keywords
Performance; performativity; Performative Experience Design; mixed reality performance; Digital Live Art; digitally augmented autobiographical performance

ACM Classification Keywords
H.5.2 [User Interfaces]: Theory and methods; User-centered design

General Terms
Human Factors; Design; Theory.

Introduction
We have set out to argue for a more fruitful integration of performance and HCI. Various practices and theories from performance studies have made their way into HCI research over the years, to greater or lesser effect.

The main obstacle that we have identified is the term itself and its many cousins: performativity, theatre, drama, story, staging, and narrative. Until we sort out what we mean when we invoke 'performance', we will fail to realise more than a tiny fraction of performance's enormous potential to contribute to and engage with the work in this area, or to identify new fields in the spaces between HCI and performance.

This paper provides an extensive, though not exhaustive, taxonomy of performance in HCI. This taxonomy is based not on any individual theoretical or practical approach, but on the constitutive elements of performance: the 'performer-spectator dyad' [46, p. 241]. It proposes definitions for key terms that have been used in loose or contradictory ways in order to facilitate a more theoretically rigorous and useful interchange between performance and HCI. An analysis of the implications of our taxonomy leads to the identification of an emerging field that we have termed Performative Experience Design (PED).

Motivation

Performance has for many years been understood as a potentially rich means of conceptualising HCI. Brenda Laurel's seminal text *Computers as Theatre* sets out drama as a theoretical framework, choosing Aristotle's *Poetics* as 'appropriate to the state of the technology to which we are trying to apply it' [29, p. 36]. This was a forward-thinking statement in 1991 and has shaped many people's thinking about HCI over the past two decades. Over a similar period, the Creativity and Cognition conferences have included performance in their investigation of the creative process.

In the past ten years, though, the HCI community has begun to search for stronger and more varied contributions from the very broad field of performance. The September 2006 special issue of *Interacting with Computers* on 'The emerging roles of performance within HCI and interaction design' [33] identified upcoming challenges, few of which have been met. The 'Cross-dressing and border crossing' workshop at CHI '04 sought methodological input from a number of domains, including performance, theatre, and dance [58]. Three major conference workshops in the past three years have investigated performative interactions in public spaces [41, 20, 60] or 'shifting roles in interactive media' [30, p. 45]. At the same time, the CHI Digital Arts Community have pursued both digital and performance arts to 'push the boundaries of HCI research and practice' [13, p. 609].

Performance in HCI: a taxonomy

We begin with a definition of performance. Even for Richard Schechner, one of the founding figures of performance studies, performance is 'the broadest, most ill-defined' of terms [46, p. 71]. In the HCI literature, we note such definitions as 'the communicative acts of designers and programmers "in the making"' [14, p. 1013]; 'experiences where participants are more aware, think feelingly about the artefacts around them and engage in the situation' [24, p. 24]; 'the processual sense of bringing to completion' [25, 41]; or 'an ephemeral and contingent process to particular socio-material-historical circumstances' as well as 'expression and individuality' [12, p. 64].

In her aesthetics of performance, theorist Erika Fischer-Lichte declines to offer a definition of performance per se, but rather points to the 'underlying factor' of the

'bodily co-presence of actors and spectators' that 'creates a relationship between co-subjects. Through their physical presence, perception, and response, the spectators become co-actors that generate the performance' [16, p. 32]. While Fischer-Lichte excludes purely mediated forms such as film from her analysis of performance, she does not address interactive systems or telepresence; we have argued that these can contribute to a synchronous, co-located performance [51]. We categorise the use of performance within HCI according to the degree to which the performance situation overlaps with the HCI situation. In other words, we look at performance roles in different interactional dynamics between human and computer agents (see Figure 1).

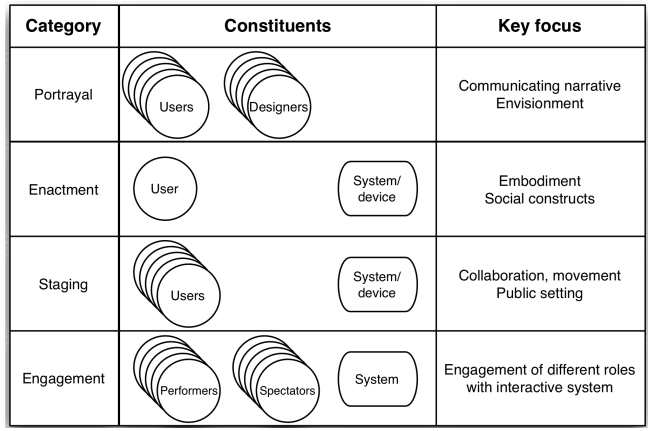

Figure 1. Taxonomy of performance in HCI.

User alone: Portrayal

The first category in our system of classification is the body of research that uses performance to address issues of communicating with 'users'—designers, potential end users, or past users—in the absence of any immediate interaction with a computing device. One example is the 'Focus Troupe' developed by Tony Salvador and Karen Howells, a method of using drama in a focus group setting to gather 'contextually relevant, personally experiential user feedback for products that do not yet exist' [45, p. 251]. By acting out scenes that show how the proposed device would work, Salvador and Howells achieve good results from their focus groups without using a functional prototype.

In this taxonomy, we use the term 'portrayal' to describe performance approaches that restrict themselves to a means of soliciting, conveying, or evaluating information in the absence of any immediate interaction with the computing device or interactive system in question [e.g., 35, 36, 37, 44, 50]. We suggest 'drama' as a rough synonym for performances in the 'portrayal' category, as this term emphasises a core narrative element or meaning. This definition respects both the common usage of the term and Schechner's influential definition. For him, drama is 'the smallest, most intense' of the terms used to describe performance, representing its 'score, scenario, instruction, plan, or map… independent of the person or people who carry it' [46, p. 71]. We note that the use of 'narrative' in this sense contradicts Laurel's distinction between the drawing out of time in (written/novelistic) narrative and the condensing of time in drama.

One user, one device: Enactment

For Carlo Jacucci, and presumably all of the researchers whose work we describe in the following three categories, 'applying performances in design can be a wider project than the adoption of an art form to ''improving communication'' in design, ''communicating design challenges'', or ''collecting requirements'' for product development' [23, p. 1052]. Works in the 'enactment' category use performance to investigate physical actions (including speech) in the interactions of individuals or groups with technology [e.g., 8, 12, 26, 31, 32, 43, 47, 56, 57].

Computers as Theatre [29] falls into the 'enactment' category. In fact, 'enactment' is a key term for Laurel. She uses it to refer to the 'material cause of a human-computer activity' [29, p. 47], 'composed of all the sensory phenomena that are part of the representation' [29, p. 54] and that involve not just cognition but 'direct sensing' and action [29, p. 94]. While this book may have contributed to the broadening of HCI to encompass enjoyment and experience, as claimed by Donald Norman in its foreword [38], in practice it offers tools for conceptualising the representation of action. Any non-naturalistic, non-theatrical elements of performance are excluded from her vision.

In the 'enactment' category, research tends to focus on the embodiment of the user. One example is SpiderCrab [59]. In this project, researchers 'investigating how robots might be more aesthetically and socially acceptable' [59, p. 102] created a large but spindly multisensory robot whose soft, lightweight limbs were controlled by warm air. This robot danced with human partners by copying, mirroring, opposing, or 'innovating' movement based on quality rather than pose. Drawing on the work of Schechner as well as Gilles Deleuze's notion of the 'objectile', the researchers find that '[p]erformance strategies produced a generative space in which knowledge was emergent, constantly in development' [59, p. 106]. They note the contributions of performance epistemology to the design process as well as to the product [59, p. 106].

Multiple users, one device: Staging

The third category of our taxonomy, 'staging', involves those pieces of research that use performance primarily to understand the collaborative interactions of multiple participants with a computing device or system, without distinguishing between user roles or types [e.g., 23, 25, 28, 42]. The focus here is often on interaction and/or movement in public settings. Although the word 'staging' implies the heavy hand of a director, not to mention overtly aesthetic intentions, it can also refer to the tradition of 'devised' theatre and performance, in which performers generate the content and form of the performance. 'Staging' conveys the primacy of social interaction over its embodied or processual nature.

One example of staging is the work of Ylva Fernaeus and Jakob Tholander [14]. Their research in developing tangible programming environments for children involved the creation of a number of 'staged activities' [14, p. 1013] for children to engage with programming tools, resulting in the development of a novel tangible programming system. They analysed what they describe as '"embodied programming": a domination of social and embodied aspects of interaction, structured by the physical manifestations of the tools' [14, pp. 1015-1016]. This research includes but is not limited to physical embodiment, indicating 'the interactional

benefits of being able to physically act in a social and collaborative setting' [14, p. 1027].

We suggest 'theatre' as a rough synonym for performance in the 'enactment' or 'staging' categories. This emphasis on the staged or presented element of performance corresponds to Schechner's use of the term 'theatre': 'the event enacted by a specific group of performers; what the performers actually do during production' [46, p. 71]. The emphasis here is less on the processual sense of the performance 'event' and more on its situated, physical enactment.

Performer(s)-spectator(s)-device: Engagement
Experience design for interactive systems has opened up an opportunity for performance to function as more than a metaphor, or a pointer toward physicality or sociality. It calls for a set of theories and practices that can address systems whose users take on different roles. This, then, is our fourth category: 'engagement'. Research in this category uses concepts of spectatorship and performance to make sense of interaction [e.g., 3, 30, 52, 53, 54, 61]. This is a narrower but potentially richer application of performance, as it makes use of specific practices and theories that can be applied, tested, and extended through HCI and design research.

As Johan Redström observes, '[a] "user" is something that designers create' [39, p. 129]. The terminology for the various gradations of 'use' is at the moment dependent on the specific context. Where Joe Geigel and Marla Schweppe distinguish between 'audiences' that are 'active' or 'passive' [19]; Alan Dix et al identify 'performers', 'participants', and 'bystanders' [11]; Stuart Reeves et al identify 'performers' and 'spectators' [40]; and Steve Benford and his colleagues identify 'performers', 'audience', 'bystanders' [2], and 'orchestrators' [4]. As Peter Dalsgaard and Lone Koefoed Hansen point out, the term 'performer' is not used in the same way in the last two papers, due most likely to their different contexts (interactive art in Reeves et al, mixed reality performance in Benford et al) [9]. We hesitate to suggest specific definitions for these terms in the absence of their context, but we would discourage the use of the term 'spect-actor' unless it implies the emancipatory political intent of its originator, Augusto Boal [6].

The 'engagement' category is dominated by a constellation of four works that fit together productively and have together provided a framework for recent investigations into user roles. The first of these four offers a provocation: 'The vast practical wisdom in the performing arts can be applied by devising activities with interactive technology' [24, p. 24]. The second and third offer taxonomies that address spectatorship. Reeves et al [40] describe a matrix of a performer's use of technology mapped against the effects that spectators may or may not perceive. Benford et al [2] apply Erving Goffman's and Gregory Bateson's notions of 'framing' to create two categories of spectators, the 'audience' (inside the frame) and 'bystanders' (outside the frame). Finally, Dalsgaard and Hansen identify three 'participant roles' at play in the actions and perceptions of a single user: operator, performer, and spectator spectating her own performance [9, p. 20]. Perceiving oneself through the eyes of a spectator is a fundamental condition for the type of work they investigate: 'it is precisely this awareness of the (potentiality of a) spectator that transforms a user into a performer' [9, p. 6].

Implications for HCI

We argue that to productively contribute performance theories or practices to the HCI repertoire, it is necessary to clarify both their limitations and their possibilities. The first three categories of portrayal, enactment, and staging make use of a few fairly isolated elements of performance theory and practice that might be developed further, particularly regarding embodied interaction. For the most part, though, we see these categories as representing a missed opportunity to make use of a body of work within the heterogeneous and extraordinarily rich field of performance. They fail to challenge HCI theory or practice as much as they could because they are constrained by vague, conflicting, or limited ideas of what 'performance' can mean.

Questions arise: how can we understand the dynamic of performative experience between spectator, performer, and device within HCI? How do we reason about interactions with this new dynamic, and how do we design for them?

Performative Experience Design

The fundamental condition of performance is the encounter between performer and spectator within a set of designed parameters. PED is the design of interactive technologies to engage participants in an intersubjective, constructive, expressive, and performative encounter with the self as it is framed and felt within the designed and time-bound framework of the experience. The aim of PED is not the invention of a product or the accomplishing of a task, but the time spent dwelling in heightened attention to the experience. While individual elements of the design might derive from everyday experience, PED offers a potential liminal space for participants to experience a transformation of their sense of self. PED designs opportunities for such experiences through performative engagement with an interactive system or device, whether 'meaningful' or 'playful' or somewhere in between.

As the name suggests, PED is an extension of experience design, which is itself a complex and contested term. A full discussion is outside the scope of this paper, but we follow a line of inquiry from the emergence of experience design [see 48] that pushes against the focus on products implicit in such frameworks as Vesa Jääsko and Tuuli Mattelmäki's 'qualities of user experience' [22] and moves towards Marc Davis' unarchivable, intangible interactions [10]. We draw in part on Jodi Forlizzi and Katja Battarbee's notion of co-experience as 'the process of lifting up experiences to shared attention' [17], but primarily on John McCarthy and Peter Wright's sustained analysis of experience [34]. Again, a full discussion of the relationship between their frameworks and PED is outside the scope of this paper. In brief, though, one of McCarthy and Wright's key contributions is their idea of the sensual, emotional, composition, and spatio-temporal 'threads of experience'. These draw attention to the pre-reflective, emotional-volitional, and reflective or meaning-making components of an experience, as well as the framing of an aesthetic experience. Indeed, they cite 'Bakhtin's treatment of the novel and Dewey's treatment of art as models of aesthetic experience' [34, p. 189] in calling for an artistic approach to HCI. We suggest the unique aesthetics of performance as a potent response to that call.

The hallmarks of PED are:

- technology for the presentation, manipulation and/or creation of digital content (representative or abstract)
- rules or guidance that sets the performance frame and guides actions such as turn-taking
- interactivity that creates different roles for different degrees or modes of interaction
- the expression of self to another (or potential other) in the form of verbal or non-verbal dialogue
- heightened attention to the present moment
- attention to the unique aesthetics of performance [16]
- performativity—the emergence of meanings, behaviours, relationships, and identities in the moment of experience.

'Performativity' is often used in HCI to draw attention to those situations in which a user is aware that her interaction can be perceived by others and might therefore alter her behaviour [see 12, 20, 41, 49, 60]. However, the term has a long and thorny history in philosophy and performance studies, often referring to the ability of some words and actions to create, rather than reflect or represent, the condition that they describe [cf. 1, 7]. Performativity in this sense contributes to the understanding of emergent behaviour, particularly involving the navigation of identity, which is constructed as it is expressed.

At this time, three lines of inquiry are pursuing research questions that correspond to the hallmarks of PED: mixed reality performance (MRP) [4], Digital Live Art (DLA) [15], and Digitally Augmented Autobiographical Performance (DAAP) [51]. These all draw on HCI and performance; MRP also looks to 'new media and game studies' [5, p. 23], where DLA turns instead to live art [15, p. 259], and DAAP looks specifically at media sharing (within HCI) and autobiographical performance in the context of digital storytelling. In DAAP, performance theory helps HCI researchers to steer clear of the outdated idea of undifferentiated 'users' who express pre-existing, static memories and stories when they engage with their personal digital media through an interactive system [cf. 18, 21, 27, 55].

Conclusion and future directions

As the work categorised in our taxonomy demonstrates, there is no shortage of research that claims to make use of performance theory and practice, but there is little common ground on which to build. We believe that the taxonomy we have developed, as well as our definitions of related key terms, can provide HCI researchers with a shared language that will allow not only the clear communication of ideas but, we trust, the 'performative' and dynamic generation of new ideas. This taxonomy has also pointed towards what we contend is the most exciting and fruitful direction for performance and HCI at this time: Performative Experience Design. We contend that PED can offer the HCI community the following opportunities:

- a rich, as yet almost untapped body of research that addresses interactions between two or more groups or individuals, all of whom are engaged in a designed, mediated, and often technologically influenced experience

- a thriving and rapidly growing body of practice directly involved with novel modes of interaction
- new epistemological, theoretical, methodological, and practical approaches to understand people's interaction with an experience.

In the words of Brenda Laurel, '[e]xploring the dynamics of emergent form will lead us to new, more appropriate ways to approach design' [29, p. 212]. We have no doubt that the opportunities we have identified can contribute to the development and expansion of a wide array of current and potential areas of research.

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