Performative Experience Design: Where autobiographical performance and human-computer interaction meet

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Abstract

This paper identifies theories and practices specific to performance art for the purpose of describing a potentially fruitful area of exchange between non-representational performance and human-computer interaction (HCI). We identify three strands of current HCI research that are already working in this area of overlap, which we have termed Performative Experience Design. We then single out one of these strands, digitally augmented autobiographical performance, for further examination. Digitally augmented autobiographical performance draws on both autobiographical performance, which we see as rooted in performance and performance art, and media sharing, a field of research within HCI. Drawing on our experiences of designing a digital system for autobiographical performance, we offer a series of proposals for HCI research and applications of Performative Experience Design.

Keywords

Performance art, performance, human-computer interaction, interaction design, experience design, Performative Experience Design, autobiography, digitally augmented autobiographical storytelling, user roles, play

Main text

Introduction

The field of human-computer interaction (HCI) has incorporated an increasingly wide range of approaches over the years. First-wave HCI, with its focus on the usability of a particular machine for a particular task, gave way to second-wave HCI, which paid attention to situated, contextualised use. The second wave has in recent years begun to give way to a third wave, which reaches for new theoretical and methodological tools to understand the rapidly shifting terrain of ubiquitous technologies that are 'non-work, non-purposeful, non-rational' (Bødker

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2006, 1-2). The increasing interdisciplinarity of third-wave HCI brings with it enormous

challenges, particularly the need to negotiate conflicting epistemologies and values. This

challenge is all the more daunting when the new fields being explored are, themselves,

heterogeneous and at times contested, as is the case with performance and performance art.

A number of HCI researchers have delved into performance theory and practice over the

years in an attempt to address second- and third-wave issues. However, performance is an

extremely wide and diverse field, so every new encounter with its literature results in a

different understanding of what performance can mean for HCI. References to performance

in the HCI literature range from Aristotle's *Poetics* to Robert McKee's screenwriting bible

Story to choreography and sociology. These are referred to by the terms 'theatre',

'performance', and 'narrative', often used interchangeably and all indicating that

performance necessarily entails mimesis and story. We argue that HCI will benefit from a

distinction between what Hans-Thies Lehmann (2006, 21) refers to as the 'theatre of dramas',

with its emphasis on imitation and plot, and the range of non-theatrical practices in post-

dramatic theatre, performance art, and performance studies. We agree wholeheartedly with

Chris Salter (2010, xxxvi) that HCI research should not neglect performance art and other

non-representational performance traditions, even (and perhaps especially) if they veer away

from neat distinctions between actors and spectators, art and life.

The first aim of this paper is to identify an existing and potentially fruitful area of overlap

between the fields of performance art and HCI, which we argue can usefully be termed

Performative Experience Design (PED). We have created this label not just to give a new

name to existing work but to illuminate the specific ways in which performance art might

further enrich these and other areas of HCI research that share similar goals. Having

established the rationale for understanding PED as a category of the juncture of performance

and HCI, this paper moves on to its second aim: a more detailed analysis of one of the strands

of PED, called digitally augmented autobiographical performance. We argue that this strand

grows out of traditions of performance and overlaps with research into media sharing within

HCI, which is becoming increasingly important in light of the rapid development of social

networking and the 'free' digital photography available via every smartphone. We then offer

the third aim of the paper, a set of proposals for HCI research, particularly in media sharing,

drawn from theories and practices of autobiographical performance.

Performance Art

The term 'performance' remains remarkably, but critically, loose in definition. As RoseLee Goldberg observes, 'performance defies precise or easy definition beyond the simple declaration that it is live art by artists' (1988, 9). Goldberg's 'live art by artists', often termed 'performance art' in the US and 'live art' in the UK, developed from the search by some twentieth-century visual artists for new means of expression. '[W]henever a certain school… seemed to have reached an impasse, artists have turned to performance as a way of breaking down categories and indicating new directions' (7). Performance art attends to the lived experience of the artists in the moment. In her recent work *The Artist Is Present* (2010) at New York's Museum of Modern Art, Marina Abramović sat in silence for hundreds of hours over the course of several weeks, opposite individual members of the public. The work created an interaction that was both rule-bound (with time limits and prohibitions on speech or physical contact) and open to exploration. Through such practices, live or performance art attends to the lived moment, which begins to ask questions of 'attention' and the ways in which this can be heightened in artistic but also in everyday practices.

Performance art might appear to sit uneasily with familiar conceptions of performance as the actions of actors on a stage, staging a theatre performance for an audience. In performance art, 'the so-called *presentational* aspect variously prevails over the representational aspect...production (of meaning, reality, etc.) prevails over reproduction' (De Marinis 1993, 48-49, emphasis in the original). As Hans-Thies Lehmann notes, historically and into the present day, 'theatre is tacitly thought of as the *theatre of dramas*' and is 'subordinated to the primacy of the text' (2006, 21-22, emphasis in the original). However, this form has been challenged, both by performance art and by what Lehmann defines as 'postdramatic theatre', which he observes as 'the execution of acts that are real in the here and now and find their fulfilment in the very moment they happen' (104).

By engaging with Goldberg's perception of performance art, we are necessarily also attending to Lehmann's postdramatic theatre, and recognising the inability to clearly separate these two traditions. Both performance art and postdramatic theatre include practices that have as their goal not the representation of a fictional time and place, but the setting of parameters to configure and reconfigure the time and place of interaction between performer and audience, spectator and spectator, spectator and bystander (Benford and Giannachi 2011), and sometimes an unwitting (Sheridan, Bryan-Kinns, and Bayliss 2007) public. We

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use the term 'performance' to recognise this connection. The engagement of performance in this sense with intersubjective interaction makes it relevant to the concerns of HCI and particularly the emerging mechanisms for presenting and representing the self through digital media. For example, an understanding of the processes at work during live, co-located performance might inform alternatives or extensions to practices of sharing emotionally charged personal information through asynchronous, online social networks. In its way, HCI may already be a form of performance, but one that can be further explored.

While some of the most celebrated works of performance art avoid the use of technology altogether, in others, technology is critical to the work. In *Ping Body* (1996), for example, performance artist Stelarc attached a number of electronic stimuli to his face, controlled by 'audience' members via the Internet. Stelarc, whose face was being contorted by others, controlled a robotic arm attached to his body. As this and many other pieces demonstrate, digital technology has become an entrenched part of the 'boundless manifesto' (Goldberg 1988, 9) of performance art. By the same token, Steve Dixon asserts that performance art has 'always been interdisciplinary, or "multimedia"' (2007, 39) and identifies a number of digital performances in the history of performance art. With this brief sketch of how we view performance art and digital performance in the context of the broader concerns of performance, we turn to the uses that HCI researchers have made of this discipline.

Performance in HCI
Many HCI researchers have worked with performance theory and practice, and increasing numbers call for further engagement. Workshops at the CHI '04, Ubicomp '10, CHI '11 and DIS '12 conferences have focused on performance and performative interactions, and the CHI Digital Arts Community continues to promote opportunities for exchange between the arts (including performance) and HCI at the annual CHI conferences. However, we contend that the emerging features of performance, particularly performance art, may not be easily accessible to those in a different discipline. We provide an extremely brief sketch of a literature review to distinguish between the HCI research that draws on the 'theatre of dramas' and that which draws on performance art and postdramatic theatre. We hope to secure a base of work at the intersection of performance and HCI based on the traditions and emerging research in this latter, much smaller category.

In many of the conversations about performance in the HCI literature, 'performance' is identified in terms that echo Lehmann's 'theatre of dramas'. That one tradition of performance is sometimes further conflated with Aristotelian ideas of mimesis and is held up as a metaphor for HCI. Brenda Laurel's *Computers as Theatre* (1991) provides frameworks for understanding interfaces as representational systems involving not just action but enactment, a significant contribution to second-wave HCI. Janet Murray's *Hamlet on the Holodeck* (1997) broadens the scope of HCI in the direction of agency, immersion, and transformation. Critical as both of these contributions have been, they are tied to drama and narrative. A thorough examination of the HCI literature in the digital library of the Association of Computing Machinery ("the computing field's premier Digital Library", dl.acm.org) reveals several dozen articles containing references to performance theory or practice in this vein. For example, HCI researchers and practitioners such as Alan Newell and his collaborators (Newell et al. 2006a, 2006b) use theatre techniques for gathering and disseminating user requirements. In this work, there is little distinction made between 'performance', 'theatre', and 'narrative'.

Two of the theorists invoked most frequently by HCI researchers (e.g., Kuutti, Iacucci, and Iacucci 2002; Dalsgaard and Hansen 2008; Coutrix et al. 2010) are Augusto Boal and Erving Goffman. Boal was a theatre practitioner and theorist from Brazil, active in the second half of the twentieth century and into the twenty-first, and arguably best known for his Theatre of the Oppressed. Many HCI researchers have borrowed Boal's notion of the spect-actor, originally created to empower disadvantaged communities by soliciting their input on a scene being enacted in front of them. Boal's work is often cited in the context of interactivity, in which the computer user is not a passive consumer but an active co-creator of an experience with a technological device (and sometimes with other users as well). Goffman was a sociologist who used drama as a guiding metaphor for his theories of social behaviour in different settings, leading to his development of 'dramaturgical analysis'. His notion that people adapt or 'frame' (1974) their behaviour dependent on the social situation is helpful for understanding people's engagement with devices in varying contexts. However, both Boal and Goffman are invoked in ways that emphasise theatre rather than performance, Boal with his dramatisations of oppression and Goffman with his division between front stage and back stage (1959).

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The work of Carlo Jacucci is exciting for its intention to use performance in HCI research 'to substantially overcome naturalistic acting in staged scenarios' and move beyond 'the mere transposition of 'procedures' from theatrical practice' (2006, 1034). Following his understanding of the term 'performance', the physical act of speaking and/or moving can refer to emergent behaviours (see also Fernaeus and Tholander 2006). Similarly, his brother Giulio Jacucci, in his doctoral thesis (2004), draws on the presentational practices of Allan Kaprow, famous for his 'Happenings' in the late 1950s and 1960s, and Vito Acconci, a performance artist whose work so blurred with the practices of everyday life that they could sometimes not be detected as performances. For example, in *Blinks* (1969), Acconci created a performance by walking down a city street and taking a photograph every time he blinked. As Philip Auslander argues, because Acconci did not draw attention to his actions during the piece, 'it is only through his documentation that his performance exists *qua* performance...' (2006, 4-6). By challenging the concept of the photograph as a record of what has already been seen, and of performance as what has been done, Acconci opened up new ways of understanding the function of representational media in performance, in the documentation of performance, and in everyday life.[i] *Blinks* can be seen as prefiguring the passive lifelogging photography of Microsoft's SenseCam, which is worn around the neck and used to take still photographs regardless of the intention or perception of the 'user' (Sellen et al. 2007).

Following Carlo Jacucci, Goldberg, and Lehmann, we contend that there is more to performance than traditional theatre that is scripted to present a fictive, naturalistic representation of life. Through performance, individuals are understood through practices that are not only embodied, as understood by Paul Dourish (2001) among others, but intersubjective, aesthetic, and potentially transformational (Fischer-Lichte 2008). This allows us to engage closely with 'work which takes life as its subject' (Goldberg 1988, 9) and which focuses on the ways in which audiences and performers present themselves in interaction with each other in technologically mediated environments. In the next section we identify three strands of HCI research that make sustained use of these insights and challenges.

Performative Experience Design
Fundamentally, both performance and HCI have as their subject the interaction of one or more people in and with a designed system. In the case of HCI, the focus is on the interaction with, and experience of, a technological device. In performance, for Erika Fischer-Lichte, the

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focus is on the ways in which individuals engage with a specific combination of physical, social, temporal, and sometimes technological factors that contribute to the mediality of a performance (2008, 38). In both cases, the individuals experiencing the designed system are, to varying degrees, participants who might be defined as 'users', 'practitioners', 'audience members', or 'spectators' of that system, or a combination of terms.

The first overlap between the two fields consists of those theories and practices that deal with a person or persons directly interacting with a digital system in order to express or present themselves to an audience. We see in this overlap an exciting new trajectory of research that extends the fields of HCI and performance, pointing toward a 'time between' the two that we have termed Performative Experience Design (PED) (withheld).[ii] Rather than focusing primarily on the technology involved, PED seeks to develop, understand, and explore intersubjective interaction in response to a system that includes digital technology. We have identified three key exemplars of PED: 'mixed reality performance' (Benford and Giannachi 2011), Digital Live Art (Sheridan 2006), and digitally augmented autobiographical performance (withheld).

All three have HCI and performance as their primary disciplines, and share many theoretical perspectives and aims. Each is further shaped by the use of additional discipline(s). This follows Goldberg's observation that performance 'draws freely on any number of disciplines and media' (1988, 9). Where mixed reality performance 'encompass[es] HCI, performance studies, new media, and game studies' (Benford and Giannachi 2011, 23), Digital Live Art 'sits at the intersection of computing, Live Art and Human-Computer Interaction' (Sheridan and Bryan-Kinns 2008, 289), and digitally augmented autobiographical performance lies between HCI, autobiographical performance, and digital storytelling (withheld).

Steve Benford and Gabriella Giannachi identify mixed reality performance, such as the work of the performance company Blast Theory, as 'an emerging theatrical genre' that involves 'the creation of experiences that mix real and virtual worlds in rich and complex ways' (2012, 38). The goal of their book *Performing Mixed Reality* (2011) is 'to lay the foundations for a "dramaturgy of performance"… to help express the different ways in which computers can be embedded into performative experiences' (2012, 38). We agree that 'drama and performance studies offer interesting paradigms to HCI' (2011, 262) but would take their

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argument a step further. Performance can not only 'interpret interactive experiences' (263) but can provide the driver for their conceptualisation and design.

With Digital Live Art, pioneered by Jennifer Sheridan, Sheridan and Nick Bryan-Kinns 'question how we design for, and support interaction, which is not conventionally task-based and routine, but experimental, improvisational and fleeting' (2008, 289). The performance theories and practices used to inform Digital Live Art include not only Goffman but specialists in live art such as Goldberg and Adrian Heathfield. Digital Live Art also offers practical guidelines for the design of 'performative tangible interaction' systems that turn 'spectators'—whether 'witting audiences' or 'unwitting bystanders'—into 'participants' and perhaps even 'performers' (291-292).

The third exemplar of PED, digitally augmented autobiographical performance, is the area in which we have been working. It shares an attention to performative and experimental behaviour in relation to interactive systems. However, it works from an overlap between specific sub-fields within HCI and performance: media sharing and autobiographical performance. Given the limited scope of this paper, we will continue our discussion of performance art and HCI through the lens of this single subset of PED, examining only autobiographical performance and interactive media systems for co-located use.

Digitally augmented autobiographical performance
Within the field of HCI is a longstanding interest in media sharing practices, such as conversational storytelling prompted by digital photographs (e.g., Balabanović, Chu, and Wolff 2000; Frohlich 2004; ten Bhömer et al. 2010). This work becomes increasingly important as the shift from analogue to digital photography and the explosive growth of social networking transform familiar practices of recording, archiving, finding, and sharing personal media such as photographs and videos. The techniques used to navigate a few dozen physical snapshots do not translate directly to the management of multiple terabytes of digital media (Sarvas and Frohlich 2011).

Current explorations of digital media sharing tend to use strategies based on observation of emerging norms within the domain. For example, Tuck Leong and his collaborators applied their observations of the value of serendipity in user experience of music to a novel digital

photo display system that engages with serendipity in similar ways (Leong 2011a). Another example is 4Photos, a digital photo display system that feeds participants' Facebook photos to a responsive display designed as a centrepiece for a dinner table (ten Bhömer et al. 2010). Their findings point towards the need to better understand 'the audience and context of use' of a co-located system as opposed to an online social network, and to address the 'shared responsibility' that emerges when interacting in a group around meaningful images (61).

These concerns and others can be substantially addressed by theories of autobiographical performance. For Deirdre Heddon (2008), the significance of autobiographical performance lies in the relationships between performers and spectators in a physically and temporally shared experience. Identity is key, but it is neither revealed nor represented—neither are possible, given Heddon's reliance on Judith Butler's (2002) notion of performativity, in which individuals do not possess a fixed identity. Rather, for Heddon, as for Butler, identity is continuously constructed and interpreted in a multilayered, temporally dynamic, contextualised, and ethically charged experience of performance. As a result, such a performance may involve an assemblage of multiple objects and memories, experienced in the presence of both the audience and the performer in 'presentational' mode.

Autobiographical performance involves the workings and mis-workings of memory on the part of the performer in the course of devising and then performing aspects of her life.[iii] It may also engage spectators in acts of remembering as they associate the stories and images in the performance with experiences of their own that come to mind. Recent research into memory tends to support Heddon's and Butler's anti-essentialist stance. Annette Kuhn, investigating the 'performance of memory in and with visual media', conceives of memory not as a transparent process but as a field of 'work' involving interpretation rather than direct access (2010, 298). This perspective is shared by Mike Pearson and Michael Shanks (2001), who understand performance that engages with the past as necessarily involving an act of interpretation that is rooted firmly in the contextualised present.

These perspectives on memory in performance are particularly relevant for autobiographical performances that incorporate not only oral storytelling but also the performer's own digital photographs, video, or audio material, a category that we have termed 'digitally augmented autobiographical performance'. This work is informed by ongoing debates on the role of digital technology within live performance (cf. Phelan 1993; Auslander 1999). In

performance, digital media offers audiences a vivid yet elusive trace of the performer's past, opening up a shared space for both to engage through memory and imagination with multiple layers of past experience, present-day interpretation, and the creation of new experiences that will shape their identities in the future (withheld).

It can be tempting, especially when discussing the actions of memory in digital performance, to focus on the digital objects themselves and the text or content delivered by the performer. However, performance is an event, not an object. As Fischer-Lichte asserts, each performance is its own unique aesthetic event with the potential for new meanings and new phenomena to emerge, independent of predetermined contexts (2008, 143). Perhaps most importantly, performance entails 'an extraordinary state of permanently heightened attention' (168), a sense of intensity and risk stronger than that found in most ordinary interaction. Digitally augmented autobiographical performance gives participants (performers and spectators) a live experience of dwelling with their memories and with others in the unique constellation of time, space, and social dynamics provided by each performance. The live performative encounter can unearth hidden stories, details, tangents, and contexts that were never mediatised and are, for the most part, not represented in digital form.

Proposals for HCI
The theories that underpin digitally augmented autobiographical performance offer a means of exploring the intersubjective experience of sharing stories around digital media, especially when that experience is an event that itself adds to and shapes the identity of the participants as a group as well as the identities of the individuals involved. This perspective responds to John McCarthy and Peter Wright's (2004) call to attend to the felt experience of interactions with technology, which they construe as emotional, situated, and aesthetic. We would argue that this call is especially urgent in experience design. A full definition of this contested term lies outside the scope of this paper, but it can be described in terms of Marc Davis' experiential systems, which seek primarily to 'select, structure, present, and manipulate data… so as to facilitate the construction of certain experiences… in various minds' (2003, 49). Designing experiential systems requires attention to the aesthetic processes through which people use technological systems to facilitate a felt, lived experience that cannot be archived or transmitted (46).

We would be remiss if we ignored the epistemological trajectory of performance as a field of study and tried to translate the implications of performance theory into a set of generalised design guidelines. Performers often identify areas of interest and then problematise them through performance, testing the repercussions of particular choices on the level of affect and response particular to each individual spectator, and indeed to each individual performer. We work in this same vein, identifying fruitful issues to problematise through design in pursuit of richly intersubjective interactions among physically co-located participants. We see this approach as an extension of third-wave HCI methods grounded in qualitative approaches to felt experience that does not fall into the trap identified by Susanne Bødker of 'a total, art-focussed breakdown' (2006, 6).

The question at the moment is this: how exactly can digitally augmented autobiographical performance develop our understanding of media sharing and lead to new forms of interaction, new possibilities for design, and new ways of analysing and creating performance? We have identified four key areas where this type of performance is providing exciting new perspectives with implications for design: user roles, game and play, temporality and documentation, and heightened attention.

User roles

In PED, a person is defined as a 'user' not only in relation to the device she is manipulating, but also in relation to those around her who are implicated in some way by the technological, social, and/or aesthetic elements of the experience. Those who are implicated might be staging an event, participating in it, contributing as spectator or passer-by, or perceiving it as an undifferentiated part of their surroundings. The category of 'user' allows us to identify one of the most fundamental aspects of PED: users may switch between roles of 'performer' and 'spectator' in the course of a performance event (Fischer-Lichte 2008, 40-51).

Digitally augmented autobiographical performance adds a new category of people implicated or affected by a performative engagement: those people represented within the media system, whose digital traces are presented in the context of autobiographical and therefore potentially non-fiction performance. We derive this from Heddon's observation that a person's life story involves or at least suggests the presence of other people—unnamed ancestors, if nothing else—and that that condition requires attention to the ethics of digitally augmented

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autobiographical performance (2008, 124). Like Digital Live Art's 'unwitting bystanders', the people implicated in autobiographical performance can be integral parts of an emotionally charged experience involving dozens or thousands of strangers without their ever being aware of it. For this reason, digitally augmented autobiographical performance heightens the ethical obligations of both digital and autobiographical work and makes these particular to the unique context of each live performance (152). The staging of media becomes as critical as the media itself and the performance of one's autobiography in response to such media. The relationality of self, the people in the media and stories, spectators, and, we would add, the future audiences of any documentation, is highlighted in a face-to-face encounter in which reactions have the potential to be viscerally sensed.

If, as Butler suggests, there is no essential self to hide or reveal—and if, as Pearson and Shanks contend, there is no singular truth about the past that can be uncovered and displayed—then a performer's ethical obligation to the people implicated in her stories cannot be satisfied by any attempt to speak the 'truth' about those people. Designs for media systems therefore have an ethical requirement to be responsible not only for the data archived and transmitted by the system but, as far as possible, the conditions of staging (see Davis 2003). This includes the performative engagement of 'spectators' who may take on the role of 'performer' during the course of the event.

As an example of how PED's attention to user roles might impact on HCI research, we turn briefly to an existing piece of design research for media sharing. Designed by Connie Golsteijn and Elise van den Hoven, Cueb 'is a set of interactive digital photo cubes with which parents and teenagers can explore individual and shared experiences' (Golsteijn and Van den Hoven 2013, 273). Cueb encourages intersubjective engagement with autobiographical memory using personal photos as triggers to co-located storytelling. The resulting conversations are enhanced by Cueb's interactive components, such as shaking, connecting, or pressing the cubes to randomise, lock, filter, or share photos. The switching of user roles is integral to Cueb's design. However, while onlookers are allowed to participate in conversations, the mechanisms for their contributions are not figured into the design. Neither is there explicit attention paid to the stories of those who are represented in the photos but denied a voice in the parent-teenager conversations. While Cueb does not suffer from either of these omissions, PED would enable additional layers of experience to be explored, and would reveal opportunities for further inclusion and engagement.

Game and play

The existence of multiple user roles raises a question: how do these roles interact? So far, the structures of interaction most commonly employed in PED are game rules. Perhaps the prime examples come from the collaborations between Benford's Mixed Reality Lab at the University of Nottingham and Blast Theory, an 'artists' group' that makes 'groundbreaking new forms of performance and interactive art'.[iv] The majority of these 'new forms' are described as games by Blast Theory themselves, or by the sponsors of the awards they win.[v] Blast Theory use game rules to help audience members negotiate their transition to becoming performers within the game.

Game rules are not the only option for structuring interaction in a performative experience. Both Goldberg and Richard Schechner locate play firmly in the remit of performance. For Schechner, this formed part of his 'tentative definition of performance' in 1977 as '[r]itualized behavior conditioned/permeated by play' (1988, 85). In terms more relevant to technologists, play is strongly allied to performance in that both are enjoyed for their own sake, in stark contrast to the goal- or task-orientation of much of the foundational work in HCI. As Roger Caillois explains, when play is given 'conventions, techniques, and utensils', it transforms into a game (2006, 141). Both play and games are widely used in rehearsal and devising processes as well as in HCI. For example, the work of Markus Montola, Jaakko Stenros, and Annika Waern on pervasive games and play has extended HCI's understanding of affect, immersion, mobile computing, and alternate reality (e.g., 2009). Also, Jane McGonigal's influential work on game and play in the context of ubiquitous computing has provided a focal point for debates over gamification and gameful design (e.g., 2011).

It is also possible to turn to performance art to discover ways to organise behaviour based on the looser structures of play, where the performers set out parameters for interaction. One iconic example of a performance of this type is Marina Abramović's *Rhythm 0* (1974). She set out dozens of objects for her audience to use on her as they chose, with no resistance on her part, for six hours. Some audience members treated her well while others stripped her and held a loaded gun to her head. Abramović laid out the parameters of space, time, and objects—including her passive self—within which her audience could behave as they pleased. Unlike a game, *Rhythm 0* had little in the way of rules, no scoring system, and no way of winning. It succeeded in captivating its audience in a complex and ethically challenging system of interactions that emerged from the unique context of that particular

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performance, with that particular audience. A similar example is the uPoi (Sheridan and Bryan-Kinns 2008), a play-based, tangible interactive system that people notice, watch, and/or play with as they choose, again with no scoring system or way of winning. Through attention to the structuring of user interactions through the parameters of play, PED can explore performative interactions of people taking on a variety of relationships to the technological systems in question.

Turning again to Cueb, we see a design for playful engagement rather than a carefully structured set of game rules. Despite the fact that Cueb is not intended as an instrument for research into either play or game, it is described in those terms by at least one user, who says that Cueb 'is very nice to play with' (Golsteijn and Van den Hoven 2013, 283). We would be interested in creating a loose, playful set of parameters within which participants might structure their interactions with the cubes and with each other, creating a bounded performance event.

Temporality and documentation

Autobiographical performance is particularly useful for drawing attention to the fact, noted by McCarthy and Wright (2004), that interactions with technology do not occur in a vacuum. Interactions draw on the user's past experiences and shape their expectations for the future. Similarly, a performance does not begin and end during a single event. Along with much performance art and postdramatic theatre, autobiographical performance is generated through the pre-performance process of devising (see Heddon 2006, 3-4), and may leave traces after its completion through processes of documentation.

Devised theatre usually begins without a script or score, and the time before the performance is spent not just rehearsing but creating and discovering the material to be performed (and sometimes also the methods for their creation and discovery). The devising process for digitally augmented autobiographical performance may well involve reflections on the performer's own past experiences, which from the point of view of the performance event creates a 'past perfect' of original experience that is layered within the moments of interpretation that took place during the devising process. These are all set against the digital traces of the performer's past experiences, reproduced and presented during devising and in performance.

Looking to the future, a performance creates not only an artistic event to be remembered for its own sake but a statement about the performer's identity, which both performer and audience will carry forward into the future. However, while documentation tends to be fixed and stable, at least over the short term, identity is neither of these. Any documentation of the performance will fix that particular articulation of identity, and future viewings will create their own moments of interpretation, set against memories of the original performance. Documentation also has the potential to alter the relationship between performers or spectators and the technological elements of the performance in at least two ways. First, the documentation might be in a different form to the technology used in the performance—for example, a performance might involve projected photographs but be documented in video. Second, the documentation might draw on the devising process itself as well as the performance per se—for example, a DVD of a performance might include images used to generate performance material but which are not present within the performance itself. This kaleidoscope of identity and temporality underscores the complexity inherent to any interaction with personal digital media.

In Cueb, there is a great deal of overlap between Golsteijn and Van den Hoven's focus on autobiographical memory (Golsteijn and Van den Hoven 2013, 275) and PED's design for shifting moments of interpretation. Following the perspective of PED, the functionality of the cubes might be extended to generate a more densely layered set of interactions. In this case, the initial photo selection process might be reconceived as part of a devising process, and the stories or interactions documented as performances. Their traces might then prompt revised or extended stories at a later time.

Heightened attention

The final but perhaps most powerful proposal for HCI research comes from taking a broad view of performance that includes or emphasises performance art. In attempting to define an aesthetics that would encompass a range of performance traditions, Fischer-Lichte (2008) observes one core condition: performances are not objects, but events. This observation leads her to reject, at least temporarily, any assumptions about performance as an art form alongside painting, sculpture, etc., and to construct an aesthetics of performance from the ground up based on 'a whole new set of aesthetic criteria' (22-23).

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It is this perspective that we feel is so critical for HCI research, particularly in interaction design and experience design. Creating new technology systems entails the building of devices, interfaces, and the like. However, designers need not think of those devices or interfaces merely as objects. They can think of them instead as elements of performance, whose use and significance are determined the moments of devising and performance. In this way, technologies can exist not only in and of themselves but as contributions to a performance event 'enabled' and 'constituted' by physically and temporally co-present human beings (Fischer-Lichte 2008, 32). We contend that there is enormous potential in conceiving of interactive systems as dynamic, unique, emergent, and human-centred performance events that use technology, then designing the technology in terms of that system.

The implications of heightened attention in digitally augmented autobiographical performance can lead designers to conceive of media sharing as a performance event. In all cases, the relationships among the human performer(s) and audience member(s) are paramount. The systems that allow access to the performer's personal digital media can then be understood as vital contributions to the performance event. These perspectives can provide new insights into designing systems that will facilitate the navigation of vast numbers of digital photographs, video, audio, and other ephemera that many have amassed since the adoption of digital cameras and smartphones. These perspectives might also invite designers to use performance as a means of enabling users to invest affect into at least a small fraction of their digital archives, as suggested by Daniela Petrelli and Steve Whittaker (2010).

Envisioning Cueb as an object, each set of interactions with that object might be seen as an opportunity for conversation. If Cueb were re-imagined as a component of a performance system, each set of interactions would constitute a unique performance event, constituted by a set of circumstances that will never occur in precisely that way in the future. While this might seem like an overly weighty attitude for a potentially insignificant interchange, it does draw attention to the very real potential for a deeply affecting and even transformational encounter. A performative redesign of Cueb might seek to engage or at least draw attention to elements of the setting, the performers' emotional and physical states, potential audiences or bystanders, and so on, in an effort to make 'entirely ordinary bodies, actions, movements, things, sounds, or odors to be perceived… as extra-ordinary and transfigured' (Fischer-Lichte 2008, 179).

Case study

We are currently developing a design that seeks to draw on both autobiographical performance and media sharing as a strand of HCI research. In this section we will point out examples of how this design is attempting to address each of the four areas of interest we have identified: user roles, game and play, temporality and documentation, and heightened attention.

Collect Yourselves! is a browser-based web application that functions as performance score, media sharing tool, and playful encounter. The goal of *Collect Yourselves!* is to provide a three-stage framework for 'live digital storytelling' in which people can engage with their own personal digital photographs in the context of a group performance. In the first stage, individual participants follow a series of prompts to investigate their digital archives. They upload a small number of images in response to these prompts, along with optional freeform text. The uploaded images and text are only visible during the second stage, in which six participants come together in the same physical space. They perform their stories and share their images with each other in a loosely structured but strictly timed group performance. In the third stage, participants can access both a video record of the entire performance and the individual media elements embedded in it. Participants can save, discard, remix, and share traces of the experience at any time in the future. The key differentiation between *Collect Yourselves!* and other media sharing platforms is not the technology per se but the way in which it directs its participants to a carefully crafted, performative engagement with memory, identity, and personal digital media.

User roles: There are no rules for or against interruptions or co-telling. By opening up the role of performer not only by distributing 'turns' but also within a given 'turn', we seek to investigate the transition from conversational narrative to aesthetic performance. The absence of strict game rules or conditions for winning serve to emphasise the participants' responsibility for their own behaviour in relation to each other and to those implicated in their media.

Game and play: *Collect Yourselves!* uses parameters, expectations, and rules for interaction but stops short of using scoring mechanisms or setting out conditions for winning. Every participant is allowed and expected to perform, but there are no mechanisms to force anyone to take part. In the same vein, participants are prevented from performing multiple stories in a

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row in an effort to distribute opportunities among the whole group, but there are no mechanisms to prevent one or more players from dominating the event. A time limit is set for the group performance as a whole, not for each individual participant or story, to allow for flexibility and negotiation. In this way we are attempting to generate a less game-like, more playful space.

Temporality and documentation: The division of *Collect Yourselves!* into three stages is a clear indication of our investigation of past, present, and future in digitally augmented autobiographical performance. We are using these three phases to investigate the ways in which people might construct a digital identity in a live performance created from and then transformed into a piece of media content (for further discussion of temporality and documentation in this context, see withheld).

Heightened attention: A number of technological interventions seek to facilitate and/or improve on digital media sharing practices. One of the goals of *Collect Yourselves!* is to identify some of the conditions necessary to turn a media sharing session into a performance, starting with Fischer-Lichte's 'heightened attention' (2008, 167). While we share Salter's view that 'everything has become performative' (2010, xxi), we see this as all the more reason to investigate what an 'actual' performance event might contribute to the understanding of the self in relation to others when that self is surrounded and augmented by digital representations.

Conclusions

Performance art has the potential to illuminate and shape HCI more than it has done so far. Many past uses of performance in HCI research have focused on the dramatic, the narrative, and the theatrical, without fully exploring the non-representational and the performative. While performance art will not provide breakthroughs for every area of interest within HCI, it may contribute to those areas that deal with the physical, emotional, and/or social responses of individuals to technological interventions: embodied practices, tangible computing, affective computing, designs for reminiscence, ubicomp, play studies, digital storytelling, and media sharing, whether co-located or asynchronous and distributed. Further, we identify in PED an arts- and humanities-based attitude toward the types of questions that might be pursued within HCI and the types of methods that might be employed. This attitude is itself a

contribution to third-wave HCI as well as research through design (Zimmerman, Forlizzi, and Evenson 2007), design-oriented research (Fällman 2003), and the role of the Digital Arts within HCI (e.g., the efforts of the Digital Arts community at the CHI conferences of 2011, 2012, and 2013).

Finally, we do not neglect the potential for HCI to contribute to performance practices and theories. PED aspires to contribute to the work of such scholars as Chris Salter (2010) and Maria Chatzichristodoulou, Janis Jefferies and Rachel Zerihan (2009), who 'extend current discourse in a field that is, on occasions, led by formalist analysis focusing on technology *per se*' by 'showcasing current works that trip the line and trouble the boundary between technological advancement and emergent performance (and performative) processes' (1-2). HCI researchers have unique areas of expertise that can help to drive these and other efforts within the field of performance. We challenge the HCI community to go exploring.

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[i] For challenges to the nature of performance as interaction or artistic endeavour, see States 1996.

[ii] 'Time between' is a development of Fischer-Lichte's 'space between' and David Frohlich's 'diamond framework for domestic photography'. See Fischer-Lichte 2008; Frohlich 2004. For a full discussion and new model for digitally augmented autobiographical performance, see withheld.

[iii] Some notable examples include Third Angel's *Class of '76* (2000) and *Cape Wrath* (2012), thirdangel.co.uk, and Tom Marshman's *Legs 11* (2011), tommarshman.com.

[iv] As of 8 January, 2013, blasttheory.co.uk/bt/about.html.

[v] For example, Blast Theory's Ulrike and Eamonn Compliant (2009) won Best Real World Game at the 2010 International Mobile Gaming Awards.