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Capturing The Tempest? Practice-as-research for Shakespearean dramaturgy and multimedia theatre production¹

ABSTRACT
This article concerns a Practice-as-Research process to develop a production of William Shakespeare's The Tempest. I am the director of the project, which involves collaboration between the Centre for Vision, Speech and Signal Processing; Movement Visualisation for e-Cultures (both University of Surrey); Lightwork (multimedia theatre company); and Mesmer (video design and production company). Shakespeare's play deals with observation and control, confinement and release. These motifs are explored in our project in a multimedia production that examines the relationship between Shakespearean drama and contemporary realisations of surveillance and space. The article addresses two phases of development. The first concerns a workshop production of the play at the Gdansk Shakespeare Festival, Poland. The second concerns a workshop at the University of Surrey exploring three motion capture technologies: the Kinect (used for domestic interactive games through the TV), the IP 360-degree surveillance camera (made by the security firm Oncam Global) and three-dimensional surround-camera animation. Lastly, the article reflects on 'Practice as Research' as a means of combining scholarly enquiry and the development of contemporary theatre production.

¹ This essay is a longer version of a paper I gave at the 3rd International Conference of Performance Studies, Shanghai Theatre Academy, 15 September 2012.
This paper concerns a practice-as-research process to develop a production of William Shakespeare's *The Tempest* for production in 2013. Firstly I outline an approach to the play that sets the terms of the project. I introduce two phases of development of practice. Lastly, I reflect on a process that involves a mix of collaborators, including professional practitioners and students, and on what I understand here by practice as research.

**Why *The Tempest***?

I was invited to direct a workshop production – an experimental piece – at the Gdansk Shakespeare Festival in Poland in 2009. The festival that year had a multimedia theme. I decided to turn to *The Tempest* to explore contemporary multimedia production and Shakespearean dramaturgy.

In Shakespeare's final play every single character is displaced, or imprisoned, or both. Prospero sees and controls everything, but is himself a castaway on the island, from which he wants to escape. Prospero knows what everyone else gets up to, and the island dwellers, Ariel and Caliban, have been forced to serve him. His powers of surveillance
and control extend beyond island. He has Ariel conjure the storm that shipwrecks
members of the courts of Milan and Naples, who had been at sea returning from a
wedding. Washed up on the island, the courtiers are disoriented by its peculiar magic,
and strange things happen to them. They are eventually led to Prospero’s cell, where
Shakespearean revelations and reconciliations take place, and Ariel and Caliban are
released from servitude. The play ends with the imminent return of Prospero and the
courtiers to their domestic city-states, leaving Caliban in ambiguous possession of the
island that he has previously declared to be ‘mine’.

*The Tempest* deals with observation and control, confinement and release. These motifs
are explored in our project through contemporary surveillance resources, with its
cameras, recording devices, viewing monitors and tracking systems. The notion that we
are living in a ‘surveillance society’ has become increasingly widespread, in tandem with
the increased sophistication of computer and media technologies. John McGrath argues
that ‘the experience of surveillance technologies in contemporary society is
fundamentally spatial’ (McGrath 2004: 133). Surveillance technologies ‘manage’ space in
particular ways, and create spaces of spectating with a certain ‘feel’ to them. We are
controlled by digital technologies – and we are (for good and ill) dis-located by them,
able (or required) to transact with others in ways that collapse time and distance. This
raises challenges for theatre design – how do we see and understand screen space and
actual space here? And there are challenges for performance. How do the actors adjust
their performance to be effective both on screen, often in very big close-up, often filmed
only obliquely, and in the theatre in front of a live audience?

If this is social performance it is so not through the ‘efficacious’ use of performance
techniques outside the theatre, but through an attempt to find contemporary cultural
expression for core themes of Shakespeare's play. We aim to make theatre that figures social process and digital culture today.

The project has had two main phases to date of development through practice. The first was the residency at Gdansk, at the end of which we presented a one-hour-long version of the play, with a scenography adapted to the theme of pervasive digital surveillance. Some of the performance, for instance, took place outside, and was mediated by video to the audience within. In July 2012 we developed the project further through a workshop at the University of Surrey, in which we explored three specific motion capture technologies, which I'll describe later.

**The Tempest in Gdansk**

I will briefly address aspects of the Gdansk workshop production by way of a selection of images. These should be seen as a something of a sketch – they show initial ideas for staging, particularly concerning tropes of physical capture, control and surveillance, rather than a full and final production.

[Figure 1: The Bosun (Brett Brown) in the storm.]

This was our approach to the storm scene that opens the play. The four performers hold on to a swaying monopod as if it were part of a ship. The camera's presence marks this as a place of mediation and hence image manipulation. The image on the screen, mixing the performer with a video design of rain and sea, gives the audience a cinematic perspective on the bosun's alarm.

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Figure 2: Prospero (Scott Handy) in his cell. Ariel (David Monteith) at his performance station behind the sailcloth, and screened on Prospero’s easel. Miranda (Bryony Hannah) sleeps in the foreground. Photo: Wiesław Czerniaowski.

This image shows Ariel figured as a shadow on the sailcloth that forms the rear of Prospero’s cell, and simultaneously as an image (relayed live) on an easel to one side. We wanted to emphasise the fact that Ariel is bound in service to Prospero (here, he is in effect bound to the microphone and camera for he does not move elsewhere), and also show his ability to be in many different places. He is corporeally present yet concealed, whilst always being electronically (immaterially) revealed. He can be virtually anywhere.

Figure 3: Ariel (David Monteith) appears to the courtiers. Photo: Wiesław Czerniaowski.

Here, for instance, he appears to the courtiers as a harpy. Monteith, playing Ariel, again performs directly to camera from his position behind the sailcloth (where he can be viewed in shadow form). We wanted to try out a ‘reverse’ surveillance effect: here the courtiers are fixed not by a camera, but by a figure who is himself fixed to camera. We explored a more developed version of this treatment in the subsequent motion-capture workshop at the University of Surrey, using the Kinect device and a trace effect on the video playback.

Figures 4-6: Caliban (David Rogers) carries wood. Photos: Wiesław Czerniaowski.

This image shows Caliban crossing in front of a large-scale split-screen rendition containing four surveillance shots of the space. These capture Caliban’s journey from different perspectives. We explored the peculiar disconnect that arises when
corporeally present movement is placed against a set of live relays that redistribute the same movement (the figure in the screens, for instance, is walking in a different direction to the figure on stage). We wanted to stage the act of surveillance, its remoteness, its proliferation, its insidious pervasiveness, and here Caliban’s earthy indifference to it.

[Figure 7: Prospero (Scott Handy) watches Ferdinand (Brett Brown) and Miranda (Bryony Hannah). Photo: Wiesław Czerniawski.

Figure 8: Ferdinand (Brett Brown) and Miranda (Bryony Hannah) speak with Prospero (Scott Handy). Photo: Wiesław Czerniawski.]

These images show Prospero, in his cell, engaging in conversation by remote means with Ferdinand and Miranda, who are co-present in the theatre space (on a different part of the stage), but notionally outdoors. We explored the spatial logic of conducting an eye-to-eye conversation simultaneously in two separate areas, by way of performance to and through the screen; and the panoptic logic that this entails, where Prospero sees everything, but cannot always be seen.

At the conclusion of the Gdansk experiment we felt that our sketch production had demonstrated potential in evoking what McGrath calls ‘the spatial nature of the surveillance experience’ (McGrath 2004), and that this in turn helps to convey key themes of The Tempest, to do with the various kinds of human ‘capture’ in the play, and the characters’ varied experiences of dis-location. It was also clear that the devices of surveillance themselves should be further explored for their aesthetic potential. We undertook such an exploration in a Research & Development workshop in July 2012 at the University of Surrey.
R&D workshop, Surrey

The main purpose of the workshop was to explore three motion capture technologies: the Kinect (used for domestic interactive games through the TV), the IP 360-degree surveillance camera (made by the security firm Oncam Global) and 3D surround-camera animation.

Kinect

The Kinect is a motion sensing device developed by Microsoft for use with its Xbox video game system. It enables recognition of the player’s movement without a need for a hand-held device. It is interactive – the player affects what appears on the screen and is herself usually figured within it. Given its relatively low cost, software programmers and developers are exploring the Kinect for use in other contexts, including multimedia performance. What did we discover in our work with this device?

- There is a Brechtian aspect to performance to the Kinect. The spectator sees the actor performing to camera in one spatial logic (an actor onstage in front of a device), and sees the composited image within another spatial logic (the scene on screen). This double perspective is common in multimedia performance that uses live camerawork, but the live interaction between the performer and the field of the image (the backdrop, to use an older term), enhances the sense that the performance is being fabricated under our nose.

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3 ‘Motion Capture for A Tempest: visual analysis of human movement, digital/corporeal interaction and performance’. A collaboration between the School of Arts / GSA (Guildford School of Acting), the CVSSP (Centre for Vision, Speech and Signal Processing), the MoVe project (Movement Visualisation for e-Cultures; all University of Surrey), Mesmer (video design & production company) and Lightwork (multimedia theatre company). Work-in-progress findings were presented at a showing on 19 July 2012 at the Ivy Arts Centre, University of Surrey. Funded by the Engineering and Physical Sciences Research Council (EPSRC Bridging the Gaps). A short edit of the R&D performance is at http://vimeo.com/47157689.

4 For more details, see http://www.xbox.com/en-GB/Kinect.
The performer must remain within a ‘cone’ of readability, the device’s field of vision that has both vertical and horizontal limits. The position of the Kinect is critical in determining the range of movement available to the performer. Thus, for example, when we set the Kinect on the ground the performer could work in low positions not possible if the device was at the height most familiar in a domestic environment – on top of the television. This means, too, that the space for performance is quite limited and physical movement must be calibrated accordingly.

We felt that this device is promising for our treatment of Ariel, performing to camera. This led to a discovery that we liked.

Figures 9-12: Natalie De Luna, as Ariel, performs to the Kinect. Still image from video recording.

The Kinect’s field of vision is limited. If the player keeps stepping back, she eventually disappears from the image shown on screen. There is a boundary of recognition, and as the figure crosses it, her image is partly captured and partly lost in a moment of electronic undecidability. This lends itself to a nice disappearance effect as the body gradually vanishes. We conducted an experiment whereby the white mask laid over the figure was removed – so Ariel suddenly becomes more human. Then, as the performer stepped back and disappeared from the image, the programmer cancelled the capture function, so that when Natalie returned into shot, she was not shown on the screen but appeared only in actual embodied form onstage. She looked differently human. We envisaged that this could make an effective treatment of the moment when Prospero releases Ariel.

We also used the device to explore the representation of Caliban in his cave. We rigged the Kinect high, as if it were a surveillance camera set in the corner of the wall and the ceiling, unreachable by Caliban. We discovered that the image field
behind the figure can be tilted in playback, so that the space in which the figure is located appears to move. This additional motion can be exploited in production. We imagine Prospero, for example, ‘tilting’ Caliban’s cave as he sits in his control centre. Meanwhile, as soon as the field of the image moves, the performer playing Caliban must roll proportionately to complete the effect. As indicated above, there is an evidently Brechtian aspect to this composition through diverse elements working synchronously.

IP 360° surveillance camera

Oncam Global’s publicity notes that the company’s IP cameras ‘are based on an innovative technology that uses a fisheye lens to create a 360° view with an extremely large area of coverage. ... The ability to see in all directions at once makes Oncam 360° IP cameras ideal for total situational awareness.’

- The IP camera offers a number of different set-ups from a single position:
  - A 360-degree fisheye view figured as a circular image. This has evident thematic potential for *The Tempest* given the play's island setting.
  - The same shot figured in a flat plane – in effect this is actually a 180-degree field of vision. The image reveals an extremely wide shot showing more space than would normally be the case in TV/cinema/video formats. This shot has the effect of showing the space as field or pattern, and offers the potential of viewing movement in context, that is as a journey between positions, or as a route through a particular spatial configuration.

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The camera’s software allows for different viewing angles to be selected, showing (for example) a figure, object or simply part of the space from separate viewing positions. The various shot selections can be shown simultaneously in a split screen arrangement. We found that four screens arranged in the manner was productive in that the eye can keep all four images in inter-relation. The image is made more contingent through this treatment – that’s to say, the fact of having more than one perspective makes one realise that there could be many different perspectives on the same action, which becomes thereby less definitive (even though there is one action, multiplied). Authority shifts from the singular presence of the performer to the choice of the gaze that determines mediation.

The IP camera can be programmed to track a moving figure within a pre-defined area of capture. This effect particularly enhances the surveillance aspect of the device, for the tracking takes place automatically without the subject being aware.

In terms of a future production of the play, this camera offers excellent possibilities for showing the actions of the courtiers and other characters around the island.

3D human motion reconstruction

This set of experiments entailed filming in a blue-screen motion capture studio using a surround-camera set-up. Eight cameras record an action that is then rendered to create a three-dimensional computer realisation that can be viewed from any angle and perspective. The actors in effect become avatars in a realization that looks not unlike a

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6 For details of the CVSSP’s work in 3D video see [http://www.surrey.ac.uk/cvssp/research/3d_video/index.htm](http://www.surrey.ac.uk/cvssp/research/3d_video/index.htm), and for Human Motion Analysis see [http://www.surrey.ac.uk/cvssp/research/motion_analysis/index.htm](http://www.surrey.ac.uk/cvssp/research/motion_analysis/index.htm)
computer game – an evocation that is to do with the self-contained dynamic of the figures, removed from any originary location and spatial context.

- The ‘raw’ footage is manifested by way of 8 images running simultaneously. We see this as an interesting output in itself, characteristic of an obsessive (saturated) mode of surveillance.

- Studio time is precious. This means that materials developed for 3D reconstruction must be prepared in detail in advance. And rendering time is long because a good deal of computer processing and storage space is required. If used in production, scenes filmed through this means could only feature as if viewed from a different place (that is, we would show, as if live, action that does not need to be performed live) or as part of a review of an action that has previously occurred. In either instance, we imagine Prospero in his media cell watching an action or encounter that he can scrutinise over and again, from different angles.

- The capture in CVSSP’s blue screen studio is typically performed using one or two figures. We tested a scene involving three figures to see what constraints or problems might emerge in the rendition. At the time of writing, the rendering of these scenes is yet to be completed, so findings are to come.

Each device or system enables a distinct form of motion capture. Taken together, however, they suggest a prospective development in intermedial performance. They each dimensionalise the figure; the Kinect and the surround-camera system by enabling 3D representation on screen, the IP camera through multi-perspectival viewing from a single device. All three devices trouble the distinction between stage space (three-dimensional) and screen space (two-dimensional), implicating the action from one realm in the other.
**Practice as research**

What conclusions might we draw from this production process concerning practice as research? I raise this here, because PaR (as we have come to know it) has become formalized in the UK Higher Education environment in a way that is not the case in many other countries. This is partly to do with the disciplinary development of theatre (and this is true of other performing arts disciplines), whereby practice has gained greater status as a proper constituent of expertise appropriate to the discipline within the academy; and partly to do with funding in Higher Education, particularly through the Research Excellence Framework (formerly the Research Assessment Exercise).7

Practice as research entails discipline-specific knowledge and enquiry. Both are typically situated and embodied. PaR is close to the sort of research and development (R&D) that is conducted by, say, pharmaceutical, product design or engineering companies that seek to develop new outputs for specific markets and within a context of production. Some of its key features, as least as intended in our development of *The Tempest*, are as indicated below.

- **Iterative**

  The exploration is shared through showings or work-in-progress productions. These iterations allow the work to be reviewed, and subsequently reiterated (or developed differently).

- **Exploration is play**

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The research is open-ended in that we cannot know what we will discover. It is thereby playful, for the end-game is at a distance. That said,

– Exploration is concrete

It is only by committing to a manifestation that we see what we have made.

– Differential learning

Different participants make discoveries according to their particular circumstances. For some of the students working in the R&D phase at Surrey, for instance, this was a first encounter with cameras in a rehearsal room. This allows for

– Parallel research & experimentation

It is possible to run diverse research agendas within the same project. The Kinect software programmer, for example, was exploring new ways of applying the ‘mask’ to the figure; I was interested in a form of intermedial dramaturgy; my colleagues in the CVSSP are refining their motion capture protocols and testing these with different control groups.

– In PaR, knowledge is produced through the relationship between realisation and reflection.

The fact of casting practice as enquiry and the matter of pausing not only to review but also, potentially, to articulate give PaR its particular dynamic. It sometimes has a different texture of discovery and understanding than might be the case with the staging of a production that seeks to express rather than explore.

It would be wrong, however, to assume that PaR is more ethereal than an orthodox production process, or disconnected from the nuts and bolts of actual production. We pursue knowledge for and about theatre-making. We aim to present a full production of
The Tempest next summer. Ultimately, we undertake this work in order to make an effective show that raises questions both of Shakespeare and of our own cultural forms.