

# POETICS OF TECHNOLOGY IN PERFORMANCE

## Prospects and Challenges for the Future

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Daniel Belton/Good Company Arts

Report By

Attakkalari Centre for Movement Arts and Sundar Sarukkai  
In partnership with Technicolor India

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# The Conference - Poetics of Technology in Performance

## Programme Sheet

This conference attempted to locate and understand the prospects and challenges of new technologies in performance, particularly in the Indian context, where the incorporation of rapid technological development in the contemporary performing arts is at wildly different stages across the country and art forms.

### Panels:

#### 1. Interrogating Presence: Challenges from Technology

The panel discussed the concept of presence on stage, the evolution of the idea of presence with the introduction of technologies and the challenges and opportunities posed by new technologies to presence in the performing arts.

**Panelists:** Prakash Belawadi, Nicole Seiler, Kunihiko Matsuo

**Moderator:** Sundar Sarukkai

#### 2. Technological Realities and Performative Space

The panel attempted to examine how artistic production has been influenced by technology, and the kind of realities that have been and can be constructed in performative works through technology.

**Panelists:** Tero Saarinen, Jayachandran Palazhy, Deepak John Mathew

#### 3. Future Prospects and Challenges with Technology

The panel attempted to look to the potential of technology in the performative space, beyond what has already been explored, and the limitations encountered in the use of technology in the performative space.

**Panelists:** Biren Ghose, Marialaura Ghidini, Chris Salter

**Moderator:** Sundar Sarukkai

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## Introduction

Projections, alternate realities, collaborative works - technology is everywhere, and is used in its expressive best in the performing arts.

*Poetics of Technology in Performance- Prospects and Challenges for the Future* is a report derived from a conference of the same name, which attempts to locate and understand the potential of using new technologies in performance, particularly in the Indian context, where the incorporation of rapid technological development in the contemporary performing arts is at wildly different stages across the country and art forms. This was done by drawing from the experience of players across the field in the performative and interdisciplinary arts, to explore their findings, and the possibilities of the future.

Discussions about the performative arts typically centre around the creators of the art. However, it is just as important to bring in audiences into the discourse of performance, especially when discussing the use of technology in performance.

Today, the public engagement with the arts has never been greater. Across India the contemporary arts have begun to capture more and more of public imagination, carving out a space for themselves beyond the existing audience for the traditional performing arts. Part of this interest has been due to the immensely captivating power of technology, which has not only served to enhance the existing mediums, but become a medium of creation in its own right.

As a tool, technology serves to engage audiences, as it is universal and homogenous, permitting access to art to larger, and wider audiences than ever before, and amplifying the impact of the performance in myriad ways.

There is thus a need for a shift in our understanding of technology. In the context of performance, technology cannot be seen as an isolated entity, independent of the artist and the piece being presented. Instead, technology needs to be seen as a social product that functions as a 'cultural adaptor' that empowers us to present and process our realities in increasingly immersive ways.

While technology has immense potential, it also comes with its own challenges, raising new

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questions about creative processes, and opening immense possibilities for the future of performative arts. This report looks at some of these questions, while also exploring how developments in technology will influence the performing arts.

Technologies often influence, aid, constrict, determine and even lead our lives to hitherto untrodden paths. It is therefore becoming an important player in the ways in which we think or imagine, experience the world, recollect or remember an event, a place, a person or even a piece of data.

There are many questions concerning the use of technology in performances.

While augmenting human capabilities with mass computational power, does it in fact alter our very sense of being? Will the advent of individuation in the realm of technologies offer the possibilities for new consciousness? When we consider works of art, particularly the time based forms such as performing arts, video, film and other screen based articulations, what are the emerging trends? How do these changes impact our expectations, experiences and sensibilities? In the context of fast changing world of technologies, how can we understand, experience and imagine a performance? What are the new realities posited by the emerging technologies, and how that could alter the ways in which we receive information and make meaning, what constitute human experience and perception, what are the possibilities of presence and experiences?

This report and conference attempt to interrogate the ideas some of the existing practices and the thoughts behind those practices. The technological spread in the world and its role in people's lives are quite varied, and in India the chasm between people who have access to wide range of technologies and those who do not is particularly wide.

The report and conference deal with these questions through three major themes. First is the theme of presence, an idea that is at the heart of performance. The notion of presence is also one that is challenged most by technology. Beginning with the discussion on presence, we discuss the way technology is influencing performance spaces and realities. The last section deals with future challenges to performance because of the rapid growth of technology today.

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## Interrogating Presence: Challenges from Technology

One of the first questions that is encountered in the usage of technology in performance is the question of the intersection between technology and performance – at what point do the artistic and technological imaginations merge?

The idea of presence is one of these first points of contact for art and technology, and this was examined in the first panel of the conference, comprising of Nicole Seiler, Matsuo Kunihiro, and Prakash Belawadi.

Presence contributes significantly to the appeal of a performance, because it draws us into the performance and determines the impact of the experience. This is because presence is in a way associated with the idea of the ‘truth’; with what is real and what is not. Presence is necessary on stage because without it, the performance would be unable to have any direct impact.

What does it really mean to be present? What is the ‘live’ in ‘live shows’? What is different from performing a play on stage and showing the play as a recorded show? Suppose we assume that a performance is taped and all its aspects are shown clearly. Then is there really a difference between the live performance and watching the taped show? If so, in what does this difference consist of?

There are two ways of approaching this problem. One is by understanding what it means to perform live and the other is through the response of the viewer. A taped show, like a TV show, also has a live performance except that the performance is for the camera and not for a ‘live’ audience. Thus, the presence of the audience as ‘live audience’ also seems to be important for performance. Another way of understanding this is to ask how the presence of an audience changes the way a show is performed, as well as asking how a viewer sees a show differently just because an individual or a group is performing in front of them. This question is important for a range of performances, including music performances. While music is far more easily consumed through records, there is nevertheless a special quality to live performances.

As we can see, it is technology that makes it possible for us to see performances when they are not live, playing an essential role in taking performances away from the live mode. In doing so, they are also changing the way performances are experienced and ‘consumed’ and thereby allow for more inclusive access to performances and art, in general.

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But at the same time, the usage of technology in performance has given rise to conceptual problems such as those related to original and copy. Technological reproductions are copies of the original live performance. Does this status as a copy remove something from the performance itself? Should this question be seen as an aesthetic question or a socio-political one?

The fundamental problem is really to understand the nature of presence or 'being present'. How does 'being present' on stage change the performance itself? While there are many elements to the privileging of present, here we will mention one important problem. This has to do with the suspicion that technology – both when it records the performance as well as make it available for others to view this performance – somehow changes the performance. Thus, it leads to the suspicion that technology can never present a performance in itself but can only present a modified and edited rendering of the live performance. Equivalently, it seems that technological reproduction of a live performance can only give one perspective to the performance. Is this what happens when we use technology? Does the new domain of digital technologies handle this problem better?

The other central question that should also be addressed is the experience of the audience. Do they experience a performance differently when they see it live and when they see it in their computers? Is the difference mainly in the framing which is different in both cases?

In the first case, the stage is the frame for the performance, and the stage itself is a frame within the auditorium. So when we see a live performance on a stage, our experience of the performance includes the experience of the spaces of both the stage and the auditorium, as well as the other people in the audience. Watching a performance on a TV or computer screen is qualitatively different because the framing of the performance is now the TV or the computer monitor. The world outside the TV and the computer, say the room in which they are kept, become part of a larger frame in which the performance is being seen. This changes the experience of the viewer.

The larger question is whether this change in the experience of viewing matters significantly in any sense and if so, in what sense? It could also be that the love for live performances is an expression of the audience's need for a tangible experience of presence in the performative space. Live performances offer tangibility and corporeality that technologically enabled copies of the performance do not have. In this sense, we could perhaps identify one important aspect of 'being present' as nothing more than 'being embodied'.

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The discussion in the first panel offered some important insights into the effect of technology on the idea of presence. The most important part of the discussion dealt with how technology actually intensifies the idea of presence rather than dilute it.

One of the arguments was that if person is physically on stage, then we are offered visual proof of presence. However, with technology, the idea of presence has expanded. The technological imagination has decentered human presence from the imagination of the audience. Voices, image projections of individuals in real time, incorporation of communication technology- these are now just as capable of suggesting a presence on stage as much as a physical body is, increasing our scope of representation. So is technology able to intensify presence in performance rather than negating the need for it entirely?

Movies themselves are a good example of the intersection of the technological and artistic imagination in the sphere of presence. As Prakash Belawadi noted, movies use camera technologies in order to zoom in and pan out of character's faces and bodies, a process that amplifies presence through simple magnification. Similarly, all our technological advances in performance and entertainment are geared towards enhancing the experience for the audience, part of which involves an increased experience of presence, such as in the development of 3D movies.

Moreover, performative spaces and types of presence that could be depicted have evolved with the evolution of technology. The shifts in performance space because of technologies have also led to a shift in narratives. Now, more than ever, as Belawadi pointed out, presence can be detected and depicted in spaces that were too small and otherwise inaccessible for films, such as bedrooms and kitchens. Because of this, women are more present than ever in movies, since the spaces they inhabit can now be easily depicted. Additionally, films medium force an authenticity of presence that stage performances did not. This is not to say that issues of gender disparity have been resolved – frequently the female presence is silent and unobtrusive, and deliberately so, with film scripts involving minimal speaking roles for women, and casting that chooses women who cannot speak the language the film is written in. Nevertheless, the female presence exists in performance now because of the meeting of the artistic and technological imaginations.

Another example of presence enhanced through technology is in Nicole Seiler's production *Shiver* which uses a camera in the performance space to capture movement by the audience and performers, which are then converted into animation that could be projected onto the performers and the screen. The audience is therefore engaged in the performance by

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incorporating them as part of the 'presence' in the performative space, as the piece is being performed. This production, with its pitch black sets and costumes combined with projections deconstructed the relationships between movement, sound, and image – all the things that denote presence – leading to a sense of disquiet among the audience who experienced a distorted presence. Thus we see that technology is utilised in performance in order to enhance spectatorship through amplification of presence. What it is also capable of, is showing us “another level of the real world” as argued by Nicole Seiler in her presentation as part of this panel.

Her production *Wilis*, an adaptation of the classic ballet *Giselle*, deals with ghosts of women with broken hearts. In keeping with the production's themes, the performance takes place in the forest, and the audience is never really sees any of the performers, only pale and translucent shadows – the ghosts in the story. The content of the piece itself demands that the tangible presence be stripped from the performative space, and Seiler instead chose to keep her audience engaged in the piece, and the performance true to the story, by using shadows to suggest a mysterious presence. The audience, as lost in the woods as Albert, must in a way survive the woods and the ghosts, which is the only presence that they are able to experience in any capacity.

However, presence as suggested by technology isn't restricted to the intangible. The third member of the panel, Matsuo Kunihiko, showed examples of performances such as the Attakkalari production *Purushartha* that utilized interactive projections and technologies creating a multimedia performance that introduced a clear technological presence to the performative space.

The suggestion of presence that isn't human in the performance space has always existed. The attempt usually has been to depict ghosts and the supernatural, but none has been so much an 'other' as the technological presence. As technology and art intertwine further, this presence grows, becoming more commonplace, and less alien in the performative space. It is therefore not a stretch to imagine that in the near future the use of drones and robotics could be used in a more seamless manner, as an essential part of the storytelling process than as a novelty, as it is used in performances today.

An example of a Japanese performance which Kunihiko showed was a startling example of how drone technology could impact a live performance. Through this argument, we can see that the relation between technology and presence, as dictated by the earlier technologies, is radically revised in the new technologies that we confront today.

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Furthermore, recent developments in technology predict the possibility of using anatomical and motion capture data to record movements, and superimpose these movements onto performer. By stimulating muscles in the correct sequence, data could result in transforming our notions of body and presence. Through the superimposition of movements, a secondary presence could be depicted on stage with the same body, resulting in a transformation of the art form itself.

Technology therefore possesses an extraordinary capacity to shape our understanding of presence and performance as it develops. What then, are the challenges from technology?

Prakash Belawadi captured this very well when he pointed out that “The brutality of technology is its casualness.” While technology is expected to improve the experience of the audience, it also normalises oversensitivity and underscores its importance in the aesthetic experience, which isn’t necessarily true. This makes the audience hyper-aware and critical, wherein even the smallest perception of a flaw can draw them out of the experience.

There is also a general anxiety among artists and performance-makers about the possibilities of technology taking over the artistic process entirely, or becoming a crutch to the process of depicting and engaging with presence in a performance. However, as Nicole Seiler pointed out, with the development of technology, the way of life and manner of living itself changes. This, Kunihiko added, has led to the creation of art that could not have done before. It is important that the way presence is understood transforms along with the developments in art and technology.

This is also important since video and video editing technology makes it easy to exploit presence - on and off the performative space - to spread misinformation or direct public opinion. If the capacities of technology in directing art and representation are not understood fully, then it becomes too easy for individual presences to be utilised for the furthering of agendas that they may or may not consent to be a part of.

Belawadi therefore recommended that both artists and their audiences use and resist technology with greater consciousness. As Seiler noted, the use of technology in a piece has to be relevant to the content itself – if it is irrelevant, then technology becomes a gimmick. The panel ended with reminding us that even as technology radically redefines who we are, the kind of art we make, and how we live and understand our lives, it also comes with costs to energy, environment, and our individual and social world.

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## Technological Realities and Performative Space

Performances require spaces where they can exist, beyond that which is physically taken up by the bodies of the performers, and the presences on stage – whether embodied or intangible.

The performative space is what denotes the reality in which a production can be performed believably, and technology today place a crucial role in determining this space. This was explored in the second panel of the conference, comprising of Jayachandran Palazhy, Tero Saarinen, and Deepak John Mathew.

Each one of us are the construct of many layers of experiences, memories and imaginations gathered or generated over many years, some even through other people and external devices. The way we perceive the world around us are often coloured, shaped or even determined by our beliefs, practices, customs and empirical experiences as well as imagination and memories of events, places, people and objects. These complex processes of calibrating multiple sensory inputs, sometimes mixed with preconceptions, conventions or imaginations, to arrive at perceptual imageries has a bearing on the way we create a performance and receive it.

We often find that our notions of reality and the ideas of space are not fixed, but rather a shifting one. This is particularly important to bear in mind when we consider a time based and ephemeral art form such as dance, which is constantly in the process of disappearing even before it is created. The traces that are left behind and remembered or recollected by the receiver are what we are left with. Therefore, the way we create images in our mind or the way we receive perceptual imageries are not necessarily pure. The processes of pattern making and pattern recognition are at the core of the processes of dance making and receiving of dance.

For practitioners of many of the Indian dance traditions the attempt is to inhabit in spaces beyond the physical contours of the body. Dancers achieve this by organising one's own musculature and the skeletal structure to project a space beyond the physical contours. "Dancers exhibit spaces beyond the contours of the body", as Jayachandran Palazhy said.

The use of eye focus coupled with the physical movement augment this experience. The idea of inhabiting in spaces beyond the physical contours can in fact be attributed to many other performance styles as well. A dancer can create micro movement as well as spaces with careful

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articulation of some parts of the body. They can also create macro movements and spaces using larger parts of the body or the whole body. For a performer, these multiple spaces and multiple movements can operate at the same time. The temporal space is another dimension of space in which a movement is located in a dance performance. Sometimes the notions of energy and dynamics also create another reality and space.

In performance traditions such as Kathakali, large costumes and colourful make up create a framework for even the minutest movement of fingers, eyes or eyebrows. The attempt by the performer is to train the body to the extent to create a neutral body so that different spaces, realities and emotions/feelings can be articulated by the performative body seemingly effortlessly.

The realities and spaces created by the technology offer another set of possibilities for creation of performances. The notion of nonlinearity offered by digital technology is a game changer in scenography. Possibilities of creating interactive scenographies that could respond to the sensory data of movement, light or sound collected from live action through sensory devices can be made to trigger different visual or auditory or other events on stage. The VR gadgets and artificial intelligence take this to a new dimension.

Neuroscience tells us that the reception of dance has a lot to do with empathy and mirror neurons. The dynamic images we construct in our mind from the fleeting images of a performance are complex. The notion of multiple presences and the way a member of the audience is able to perceive these images that are located in varied spaces that are real or suggested become important in understanding the processes of how we receive a dance performance. Technologically mandated spaces and presences are also increasingly becoming an integral part of these processes. Even motion data captured from a moving body extrapolated onto a shadow or cartoon figure or an object can indicate the presence of a human body without actually having the realistic image of the human body. When we explore this idea in many possible contexts the possibilities are immense.

As Palazhy pointed out, works by the Attakkalari Centre for Movement Arts over the years have attempted to mix and blend spaces such as empirical spaces, the spaces defined by the performer, digitally created spaces, temporal spaces etc., in order to create a combined and often complex notion of reality and space. As the theatrical space is a make-believe world, the possibilities of such varied and often immersive spaces can create a sense of theatrical reality where time can become elastic by either stretching or collapsing, and spaces can also interchange. When an image of a live action on stage is captured and processed by a computer

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to project back onto the performance space, a sense of memory of the previous event can be evoked. This idea of stretching the theatrical time is an aspect we need to consider when we think of technologically mediated realities on stage.

Technology plays an important role in evoking such realities that are akin to one or more of our sensory perceptions. When technological development is taking place at a speed in which it often feels like even our imagination may have to catch up, then the possibilities of creating new paradigms and dimensions for performance and time based arts are immense. The augmented capabilities offered by technological advances are often felt in a country like India in varied and different ways. The reach of emerging technologies is also varied in different strata of society.

The notions of body and its multiple constructions that are formed in the imagination of individuals can vary according to the very context and experiences one has in life. Therefore the spaces the body inhabits in a performance can also be varied according to the imagination particular to that individual member of the audience. The perceptions of spaces and realities created or suggested by technology also are in a way influenced by these factors. Therefore, the challenges of using technological devices and methods in imagining and constructing works of art, from the inception of an idea, to the different stages of the creative processes, culminating in the performance and the reception of that work by an audience are multiple and defy a singular understanding.

In a society like ours this becomes more complex as many of our traditions operate in a different time and space. The way they are perceived in those communities and the resonances they make in the audience are also varied. We may have to take these into account to understand the possibilities of processing these traditions and adoption of technology in performative contexts. Thus, developments in technology have certainly influenced how we experience presence in the performative space, but perhaps it has been seen at its most transformative when the performing arts utilise technology in order to create new realities.

The space inhabited by a performance is central to the way in which the audience experiences a production. As Palazhy noted, if a row of dots are placed in front of an individual, they will be able to connect them in their imaginations in order to form a line. Similarly, performances are able to create realities in which they exist.

Lighting and sound technologies have been used by artists for eons to create different narratives in the performance space. The neutral performer is able to assume and depict

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performative ideas through simple manipulation of light technologies and soundscapes that allow the audience to be part of the process of creating realities through simple suggestive processes. The power of suggestion is utilised extensively in any performance, and especially so in dance. The mediation of technology in the performative space is then to create and bring augmented realities that a production can be performed in.

In a dance piece these realities are created so that the dancing bodies can enter the imaginations of the audience and direct it towards the artist's vision. It is used in performance to create a performance space that best suits the piece, and allows artists to open up new possibilities of representation and suggestion that emphasises the aesthetics of their production. While our imaginations surpass the realities of our world, technological innovations frequently surpasses our imaginations, opening up more, and different, types of spaces that can be inhabited by a performance.

One such example is the late Alexander McQueen's runway shows, which was presented by Deepak John Mathew in the panel Technological Realities and Performative Space. In his Spring/Summer collection of 1999, McQueen's runway show included the model Shalom Harlow, wearing a white dress standing on a revolving platform and being spray painted by two robots in a near fantastic choreography, with the robots gaining a certain conscious awareness of their own. In his Fall/Winter collection of 2006, McQueen's showstopper was a mysterious puff of smoke inside a glass pyramid that coalesced into the slow twisting form of model Kate Moss in an ethereal white dress.

In both instances audiences were thrown headfirst into a performance where the technological and fantastical presences inhabited the same space as haute couture, elevating the runway show into performance art. The technological interventions in the show offered context to designs on the runway, and to the ideas and experiences that informed the designs.

It is important to remember from these examples that art is abstract, utilising symbols in order to express more than direct representation ever could. And as the panel noted, audiences are able to understand abstract representations of human feeling in a performance through empathy and processes of meaning-making, assisted by technology which creates realities that offer a context to understand the representations and magnifying their impact. Our understanding of the world is determined by how we perceive it, and in the performing arts technology serves to manipulate and even function as extensions of our sensory receptors. This way, even simple technologies that involve manipulation of light and sound are able to influence our perception of a performance.

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Technology has allowed artists to explore creation in new ways, and move beyond direct correlations between inspiration and the art work. Thus technology opens up possibilities of creating environments as true to the artist's vision and imagination as possible. When used sparsely, and with a clear rationale, technology has the capacity to make a performance resonate more intensely, and with a wider audience than a performance that doesn't use any technology at all. It offers the audience more access to the performance, and through the use of technology, the audience and performer become one.

Through technology, artists are able to challenge existing notions of the acceptable and the depraved, that which is possible and impossible. For instance, the performance artist Stelarc was able to 'grow' a third 'ear' on his forearm. The ear, while currently just an unusable implant, was designed so that the artist would be able to implant a miniature microphone, connected to the internet, that could be used by anyone with access to the internet to listen to what the artist is hearing, anytime, anywhere. This example was used by Mathew to illustrate the movement of 'bio-hackers', who explore the extremes of incorporating technology and art. Stelarc, through his surgery, has created a performative space that begins with his body, but through technology, will inhabit the internet, bringing his audience directly into his living reality.

In the presentation by choreographer and dancer Tero Saarinen, he presented his solo - *HUNT* - a production where his body became the canvas for live projections, thereby examining the way in which people were both hunters and the hunted in their interactions with technology, being bombarded by information at every point. Through the execution of this piece Saarinen was able to transform his body into a space for performance on its own right, exploring the limits of performance in body and technology. This exploration of the extremes creates the fear and the friction that is important in order to find the 'middle ground' according to Tero Saarinen, where artists utilise technology in performance out of necessity and not as a substitute for creativity.

Technology in the performing arts has transformed the method of art-making itself, and thereby challenged the ways in which audiences of these performances are able to make meaning out of them. An exploration of the extremes leads to changes and innovations, pushing the worlds of technology and performative arts beyond that what was imagined.

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## Future Prospects and Challenges with Technology

How do we then look at future prospects at the intersection of technology and performance?

While a medium like film is dominantly dependent on the available technology, performances such as theatre and dance try to retain an autonomous space independent of technology. But today, as demonstrated in this report and the conference that resulted in it, it is impossible to ignore technology in the production of new art. The third panel, comprising of Biren Ghose, Marialaura Ghidini, and Chris Salter brought together both the actual and the future of technology, thereby opening up new questions for the future of technology in performance.

Salter began with reminding us that the word ‘technology’ comes from the Greek words ‘Techne’ and ‘Logos’. Techne means art, skill, or craft; and while logos means ‘words’ , it can also mean ‘order.’ Therefore, when thinking about technology in performance, and the future of technology in performance, one has to go back to the past, to texts such as a the *Nātya Sāstra*, which gives us ways through which we can look at technology as “a kind of order imposed upon craft, imposed upon skill”.

So in that sense, the use of technology in performances goes as far back as when the *Nātya Sāstra* was composed/written, since that functions as a manual for the performing arts, placing a grid of order on an ancient world. It lays out a certain contemporary understanding of technology as being something beyond physical objects, such as a camera or a microphone, but also as a structuring principle imposed on the act of performance.

What this means then is that technology has always been present in the performing arts. The rules, systems, schemas, theories of aesthetics, and plans imposed upon the arts over the years all qualify as a kind of technology in performance. It isn’t just about tangible objects used to facilitate performance, but also a kind of structure and context that one attempts to lay on the world.

Salter also reminded us that the word ‘theatre’ comes from the Greek word ‘theatron’ which

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literally means ‘viewing place’. This suggests a mediation between the physical and the perceptual that audiences of performance utilise to order the aesthetic practice. This is to say that theatre isn’t just a discipline; it is a perceptual act, where one is able to ‘see’.

This is important, because over the two thousand years since the *Nāṭya Sāstra* was written, technology in performance became what it is most associated with in popular imagination – machines, lighting, photography and moving images, and live films that could be ‘seen’ in the traditional sense. However, computers continued to develop, and today, technology in performance has gone back to being less about visibility on stage as a piece of technology, into an ordering principle that dictates the art itself.

When it is done well, the technology used in performance is not noticeable in itself, because it is secondary to the experience as Biren Ghose noted in his presentation at the conference.

The future of technology therefore is not just in what it is capable of, but also in its normalisation to the point of invisibility in everyday life. On screens, it is now nearly impossible to tell the difference between what is created, and what is not. There is no limit to what can be represented through technology which has now surpassed what human imagination can dream of. However, even the simplest of animations today take an extraordinary amount of work, not just to ensure that the animation is exactly as it should be, but also so that the process becomes invisible.

Biren Ghose suggested that “technology at its heart is meant to be a simplifier”. Aspects of a production that are impossible to represent through the physical body, or the performative space, can be represented through technology. Antonin Artaud, a French dramatist and theatre director from the 19th century frequently spoke of the notion of invisibility in theatre and created a performance where the space and bodies of the audience were buffeted by strange forces – sounds, kick, and vibrations that would immerse them in the performance. Without technology, such an experience would be impossible to create.

Additionally, technology used in performances today such as sensors, computers, control systems, and algorithms aren’t tangible in any real sense. This is interesting, because it points to the use of technology in performance as not being a revolution, but rather a process of evolution, as Salter pointed out, almost like magic. Apart from these, technology has also caused a shift in the places where performances take place, and how audiences experience it. Today, artists find that social media offers a platform to broadcast performances, even site specific performances, in real time.

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Social media platforms sometimes become performance spaces themselves, as Marialaura Ghidini pointed out. For instance, *Dorm Daze*, a facebook 'sitcom' was a performance where participants inhabited profiles of real American students, with a semi-scripted narrative directed by their interactions with each other and direction from the artists Ed Fornieles. *#cloudrumble56*, by Abhishek Hazra, was a performance that was enacted in real time, but only broadcast through the world as a series of live tweets on the social media platform Twitter.

Thus, as Chris Salter said, the "real future of performance lies less in what we can see, and instead on what can be discerned by machines, what is invisible."

In today's world, technology has taken a new shape and form when used in performance. It is moving out into the human environment, and technologises it, thus becoming an autonomous actor on its own right. As artists and as an audience, it is isn't hard to imagine that as technology becomes more sophisticated, it would be naturalised to the point where humanity would no longer direct the usage of technology in performance, but instead merely have to operate it.

Thus, the future of technology in performance is the blurring of the lines between the creator, technological artefacts, and the audience. Technology has increased the degree of engagement that a performance has with its audience, leading the audience to become an integral part of the process of creation. Similarly in the evolution or 'auto genesis' of technical objects, these objects are coming into being, redefining their relationship with the live, moving body.

In an increasingly technical environment, the possibilities of technological objects becoming part of the creation process seems inevitable, with the endless invisible things detecting movements and physiological data from bodies, capable of processing and changing this information into numbers that could then be used to alter performative elements in real time.

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## Conclusion

Through the PoTiP report and conference, the discussions and presentations explored the capacities of technology in performance through various modes: as an ordering principle, as physical objects that enhanced the experience of performance, as possessing a presence and manipulating this presence in the performative space, and its transformative powers in the performative space.

When looking towards the future of technology in performance, it is evident then that technology has evolved into a tool to think, imagine, and conceive of art, rather than being merely a passive element of performance. Technology has never had, and now will never have, an autonomous relationship with art.

The research for this report through a conference generated an interesting set of new ideas to think about technology and its relation to performance. In particular, it showed examples of how cutting edge technologies are changing traditional norms of artistic practice in performance and movement arts. The underlying tension between the two, namely, the centrality of the agency of the artist or the technological medium that assists the production of art, now gets manifested in different ways.

In the cases where the artists use technology as an essential element in their practice they are actually raising new questions about the agency of artistic practices. In so doing, there is an important question that we need to ask: can art practice with technology influence the growth of technology? Can art make meaningful changes in the growth and contours of new technology?

One way that this has happened is through design where artists have had an important presence. The artistic imagination of technology is not about how to make things work but more importantly how to imagine new technologies, new objects and artefacts. Through dialogues and research (like this report) between groups of art practitioners and technologists new ways can be charted to not only understand the impact of technology in the future of performance, but also to create and imagine new technologies.

