

# TRANSMEDIAL: TRACKING THE INTERSECTIONS BETWEEN PRINT, TECHNOLOGY AND SCIENCE

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## ABSTRACT

To enhance future technology-integrated approaches with handmade print, this paper aims to trigger conversations on how printmaking might change in an ambitious digital world, albeit in a new form. TRANSMEDIAL is a research project accompanying an international printmaking exhibition that examines diverse intersections between art, technology and science. Curated by artists and researchers Monika Lukowska and Sarah Robinson, TRANSMEDIAL asks in what way technology has embedded itself within the printmaking medium, not only technically but also conceptually, and what the implications are for audiences, artists and the field.

TRANSMEDIAL's premise evolved in response to themes of concept and technology discussed in Ruth Pelzer-Montada's anthology *Perspectives on Contemporary Printmaking*. Since its invention, printmaking has been well-known to be an ever-changing medium closely linked with the technological development of the times; printmakers have readily embraced new technologies and employed them to push the boundaries of the medium innovatively. The rapidly developing computer technologies have been adopted by printmaking in a process that art historian Ernst Rebel calls "transmedialisation". The established relationship between materials, tools, the matrix, and the form has changed as matrices, significantly, became immaterial, embedded in computer binary codes. As a result, prints have taken many forms, including projections, animations, virtual reality, and, arguably, even soundscapes. What does this mean to the print medium? What are the implications for the traditional process and the notions of layering, physical matrices, and editions? Is digital technology a threat to printmaking or just another stage in the rise of machines?

The critical analysis of multisensorial modes of the engagement generated by artworks curated for TRANSMEDIAL: Expanding Technologies in

Contemporary Printmaking draws on seminal writing in the field by theoreticians Frieder Nake and Ruth Pelzer-Montada. The work created alongside machines and the ubiquitous presence of technology is still seen as a threat to the traditional printmaking processes or as a perception of traditional print techniques becoming 'outdated modes of technology' where machines replace the artists' hand.

However, the work presented in the exhibition emerges from a discourse between traditional and digital printmaking, questioning concepts and the qualities of both by interweaving digital layers with physical matrices, offering aesthetics originating from algorithmic data, sound waves and robotics.

In reinventing the nineteenth-century Woodburytype technique, Susanne Klein's process is paramount to her critical investigation into digital image aesthetics, as seen through her salon hang of photoprint experiments at the TRANSMEDIAL show. Santiago Pérez's robotic arm programming is analysed from dexterities involved in thinking through touch, which has changed significantly in response to matrices that became immaterial, embedded in computer binary codes. Methods of layering are challenged in the sonic work of Magda Stawarska-Beavan; the artist is "interested in how the visualisation of sound can affect image-making and how the ephemeral qualities of sound and memories translate into printmaking forms" in *Resonating Silence I & II*, (2019). While drawing upon unique qualities of lithography, Ingrid Ledent's installation *Mindframe* (2018) questioned the notion of reproducibility and repetition, creating a multilayered work that involved video, sound, and digital prints. Although for all TRANSMEDIAL artists technology is another tool in their studios, the work still strongly resonates with printmaking aesthetics and foundations.

TRANSMEDIAL initiates a dialogue about the future of the printmaking medium by looking at how print as a medium has been challenged and how the viewer's experience has changed. This research

positions printmaking in a rapidly changing global art context.

## INTRODUCTION

TRANSMEDIAL is an ongoing research project with an accompanying international printmaking exhibition held in 2021 that examined diverse intersections between art, technology and science. TRANSMEDIAL investigates in what ways technology has embedded itself within the contemporary printmaking medium, technically and conceptually, and what the implications might be for audiences, artists and the field.

*TRANSMEDIAL's* premise evolved in response to themes discussed in Ruth Pelzer-Montada's (2018, pp. 1-347) anthology, *Perspectives on Contemporary Printmaking*. Since its invention, printmaking has been well-known as an ever-changing medium closely linked with technological developments; printmakers have embraced new technologies and employed them to innovatively push the boundaries of the medium. Since the 1970s/80s rapidly developing computer technologies have been adopted by printmaking in a process that art historian Ernst Rebel calls "transmedialisation" (Rebel, 2003, p. 29). This means specific media letting go of some of their inherent properties, allowing another medium to take over. For example, established relationships between materials, tools, matrices and form have changed significantly as matrices have become immaterial, embedded in computer binary codes. As a result, prints today have many configurations, projections, animations and, arguably, soundscapes. What does it then mean to the print medium? What are the implications for the traditional process and the notions of layering, physical matrices, and editions? Is digital technology a threat to printmaking or just another move towards diversity?

Here, we examine how the skills involved in physical making have changed in response to matrices that have become digital and that are affected by algorithms. This paper investigates the intersections between traditional printmaking processes and digital technologies through a comparison in the work by Susanne Klein and Santiago Pérez and between Ingrid Ledent's and Magda Stawarska-Beavan's installations, all of which were showcased at the TRANSMEDIAL exhibition in Perth, Western Australia. Multiple layering of sound, print and place in the work of Ledent is compared with a multimedia work, *Resonating Silence II*, by Stawarska-Beavan. In contrast, tracking intersections between science and print is considered through Pérez's robotic installation and Klein's salon hang of dynamic Woodburytype tests at the TRANSMEDIAL exhibition. By considering technology-integrated approaches in conjunction with handmade prints, we aim to initiate a dialogue about the changes within contemporary printmaking and how those transformations might affect printmaking in the future.

## PRINT AND MACHINES

Computing expert Frieder Nake (2010, p. 180) considers the computer's capacity to enhance "the mental, conceptual level" in artwork when

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creating images. According to Nake (2010, p. 180), using a computer instead of working by hand on a traditional printmaking plate frees artists from physical studio constraints. It potentially encourages artists to delve deeper into ideas without being preoccupied with the technical aspects of the physical process. If this is so, why are artworks created by or together with machines—here we specifically allude to digital technologies in image-making—sometimes seen as a threat to traditional processes? How do dichotomies with the qualities of both traditional and digital printmaking interweave digital layers with physical matrices?

This exciting intersection of machines with traditional processes, in other words, transmedialisation, is discussed by considering Klein's printmaking practice, which reinvents the nineteenth-century Woodburytype technique, alongside Pérez's robotic mark-making, drawn from his architectural design background that crosses over into print. Klein's transmedialisation of images uses old and new technologies, such as Woodburytype, and the strategic testing of processes and experiments with materials.

Architectural, portrait, and plant images are exposed on polymer or milled plates to create the matrix. Through a digital process, Klein often splits images into Red, Green and Blue (RGB), the primary colours of light drawn from RGB analogue photography techniques. At a deeper level, comparisons might be made with the recording of a pixelated image, which Nake (2010, p. 179) suggests is where the pixel must be a result of "thought with systematically encoded locations with x and y coordinates as well as encoded tristimulus value of red, green and blue components". Klein makes subtle intersections between light captured in a photographic image with the light held within the printed aesthetic that links with old machine processes, i.e., Woodburytype with modern photopolymer. As Kline commented, "A simplification of the Woodbury process and the use of modern photopolymer flexo plates allow me to resurrect the method not only in black and white but also in colour" (Kline as cited in Lukowska & Robinson, 2021, p. 40). Indeed, monochrome images are transferred onto napkins and synthetic fabric in which digital image analysis arises not only from digital interventions but from dexterities involved in thinking through touch with the material of ink and the process. Subsequently, a digital/traditional intersection is paramount to Klein's critical investigation into optical materials through digital image aesthetics. This contemporary evidence supports the value of old technology. This latest approach of incorporating old and new technology has shifted significantly in response to matrices that had become immaterial, inserted in the form of computer binary numbers. Furthermore, Pelzer-Montada (2018, p. 14) questions if traditional techniques can become "...outdated mode[s] of technology" where algorithms will replace the sense of touch and the artist's hand. As Nake stated, "These days, it is the hand that helps thought to find its *algorithmic* formulation" (2010, p. 179). Another example might be in the digital sphere that attracts huge investments in researching *touch* in the robotics and gaming industry, a step toward machines mimicking touch for the user.



Figure 1

Figure 1: Susanne Klein, *Install Transmedial: Expanding Technologies in Contemporary Printmaking*, 2021. 16 framed works, full colour or monochrome Woodbury type, milled or polymer plates, framed 60 X 60cm. Courtesy of the artist. All works were realised with the help of Damien Leech, Frank Menger and Walter Guy at UWE. Photographer: Ian Yendell

Indeed, Pérez programmes the singular robotic arm to act as a screen printer's hands. The show becomes performative and mesmeric, yet, with a kill switch, very, very close. A printed wave arises from Pérez's breath captured by a sensor directly into his computer, which translates his breath into the algorithm driving the robotic arm. The wave of the artist's breath is visualised in print as the audience becomes in tandem with the robotic arm. The paint is mixed by a painter (an expert colourist) as others dry each paint line with a hairdryer between the robotic arm motions. Pérez is programming algorithms for this moment of making visible the artist's breath, invisible in motion. Three things come together, a painter, a design expert and an audience, in a transfusion of new things redefining the original software-executed codes. Algorithmic data and signals are being translated by the printmaker/artist/designer. Indeed, Pérez's performative lines or Klein's beautiful material prints into an aesthetic form that appeals to our senses.

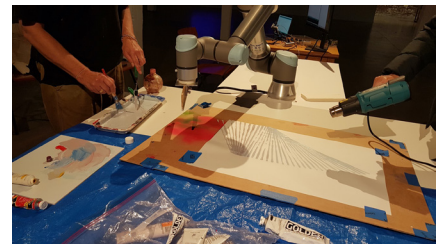


Figure 2

Continuing with the analysis of print and machines or the liminal line involved in moving the image away from direct software representation leads us to the addition of sound and digital projection to the mix of layering in the work of Ledent and Stawarska-Beavan.



Figure 3

### PRINT, DIGITAL, AND SONIC LAYERING

Layering, inherently associated with printmaking, is challenged in the work of Stawarska-Beavan which comprises sound, the physical, silkscreened artist's book and digital projection. The artist is "interested in how the visualisation of sound can affect image-making and how the ephemeral qualities of sound and memories translate into printmaking forms" in *Resonating Silence I & II* (2019). Multidimensional layering allows the artists to evoke a sensorial experience of the work while engaging the viewers. In Stawarska-Beavan's work, the "elements of printmaking techniques such as layering, transparency, and viscosity can readily be recognised in the creation of sound compositions but equally the rhythm, passage of time and performance can also be read in examples of printmaking where moving image qualities flow back and feed into the works on paper" (Stawarska-Beavan, 2021, pers. communication).



Figure 4

Layering is also taken further in a work by Ingrid Ledent named *Mindframe* (2018). While drawing upon unique qualities of lithography, she questioned the notion of reproducibility and repetition, creating a multilayered work that involved video, sound and digital prints.

Ledent comments, "I augment the use of traditional printing techniques (lithography) by combining them with computer print, video and audio. I am mainly fascinated by one of the characteristic attributes of printing techniques, reproducibility. I use reproducibility not to make editions but as a generating element. During the printing process, the 'repetitions' get layered on one another creating new visual forms". Printed lines on 2D lithographs are repeated on the small paper tubes which are placed in two circles on the floor, and further animated in the large-scale video projection. Looking at the work, the viewer's eyes are

Figure 2: Santiago Pérez, Robotic Mark-Making in the Expanded Field part of Social Distance Series 01A, 2021. Courtesy of the artist. Acrylic on paper, robotic blade-painting process test, community workshop on Saturday, May 22 2021. Photographer: Sarah Robinson  
 Figure 3: Magda Stawarska-Beavan, Resonating Silence II, 2019. Detail: video installation; split-screen projection onto a screen-printed book, placed on a table. Sound on the headphones. Courtesy of the artist. Photographer Sarah Robinson  
 Figure 4: Ingrid Ledent Installation: Mindframe, 2018. Transmedial: Expanding Technologies in Contemporary Printmaking 2021, installation view: consisting of video and audio projected on a painted red surface on the wall, time: 5'39"-lithography on Wenzhou paper, glued on cardboard tubes, size: diameter approximately 2,5 m. Mindscape III (2020), Lithography and digital print on Zerkall paper, 65cm x 160cm. Mindscape IV, 2020, Lithography and digital print on Zerkall paper, 65cm x 165cm. Courtesy of the artist. Photographer: Monika Lukowska

encouraged to wander, noticing details and similarities in the delicate patterns while reflecting on “the continuous living of a memory and a Henri Bergson concept of time” (Ledent 2021, pers. communication).

Both Ledent’s and Stawarska-Beavan’s artworks draw from printmaking fundamentals of layering, the artists skilfully manipulating and enhancing the layers to create complex artworks both visually and conceptually. The use of technology allows the addition of sensorial properties and promotes a more profound engagement with the work.

## CONCLUSION

The printmaking term ‘expanded practice’ has been evident for a while now as attention is no longer focused on the traditional printed mark and editions. The established relationships between traditional materials, tools, and print matrices are constantly challenged. Printmaking processes have been strongly affected by immaterial matrices becoming embedded in computer binary codes. Perhaps, in a culturally broad sense, there are virtually no images anymore that would not, at least, be touched to some minor degree by computer software. Innovation will continue as emphasis shifts and changes with the tides of the technological world. Yet the importance of innovations lies in its capacity for allowing audiences to experience, see and contribute to something greater by just being there and viewing the work.

The four artists discussed above have employed some form of digital data distributed across algorithmically driven technologies. In line with Nike’s remarks, computer digital marks are predominantly analogous, imparting a sameness to images in contemporary culture; it is the artist’s *touch* that gives the difference to an image and engages the audience. Both Ledent’s and Stawarska-Beavan’s creative practice falls into this space. The artists embrace the digital within the handmade with neither one print technique dominating. We see a forward motion toward expressive impetus that combines physical touch and conceptual layering that provides a multisensorial experience for the viewer. A true sense of touch is a sense which has often been lost in printmaking with the rise of the digital but it is gaining momentum once again.

We notice that one of the key aspects of contemporary printmaking is our creative relationship with machines, traditional presses or digital technologies as we continue to use *them* rather than they use us. We can learn much from the past as Klein has demonstrated by reinventing Woodburytype to investigate materials and chemical image-making as a reaction to the developments in materials and the need for sustainability in the world.

The use of technology and its dialogue with traditional processes is especially relevant now, where virtual gallery tours, conferences and online meetings have forced us to rethink communication, and the way we see, connect and describe our embodied environments. Printmaking studios have been locked and become inaccessible,



Figure 5

Figure 5: Magda Stawarska-Beavan, *Resonating Silence I*, 2019, a sound piece on vinyl record with screen-print on the front and back cover, dimensions H 30.48 x 30.48 W cm. Voice and text are written in response to the soundscape by Heather Ross. Courtesy of the artist. Photographer: Ian Yendell

causing artists to move to alternate physical spaces, e.g., garages or within digital platforms, yet sparking renewed interest in the traditional techniques and collaborative processes that printmaking offers. We are at an intersection in printmaking's historical development.

Transformative printmaking is offered as an alternative term to expanded print; we should see transformative practice as providing alternatives to running into synchronized computer mark-making. Touch is being used extensively as a way to react directly to the environment. Indeed, nature prints itself onto the artists' matrix. We propose the term TRANSMEDIAL as a technology-integrated approach with handmade print remodelling print-making's future.

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IMAGE GALLERY

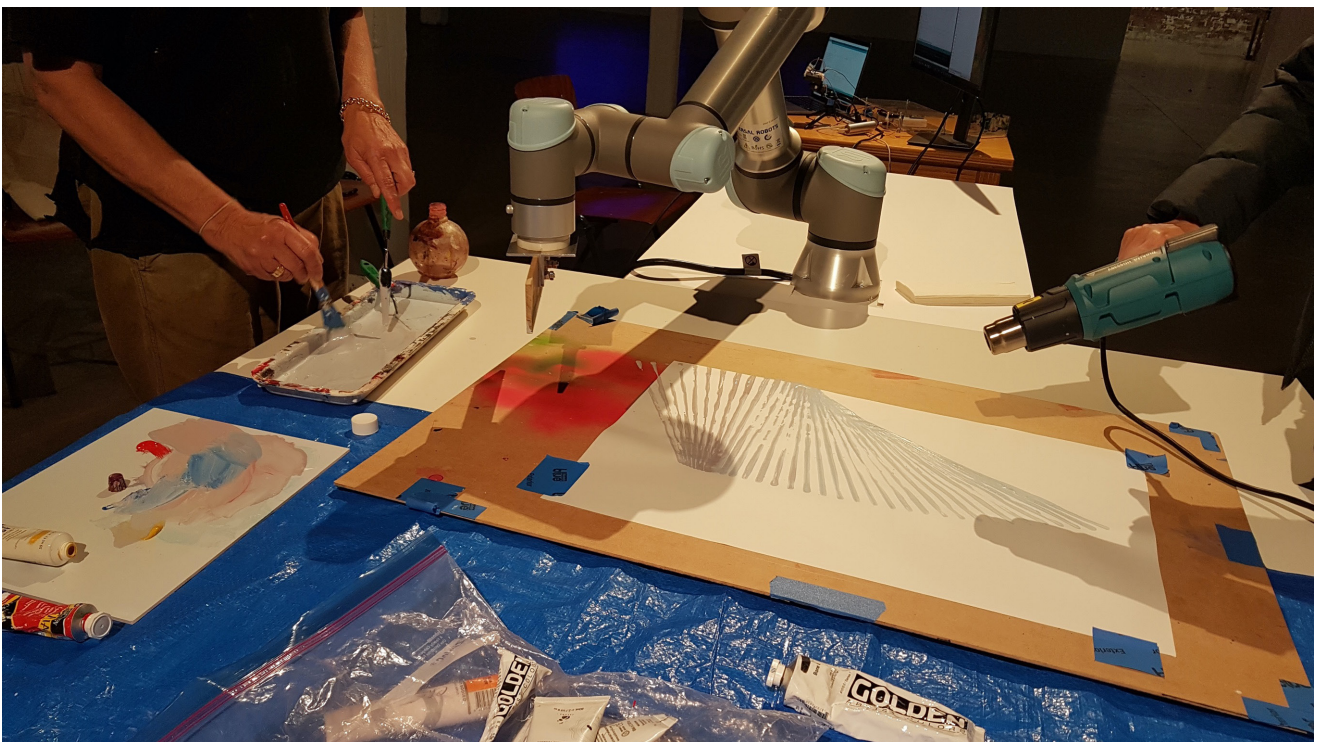


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