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Radical Software: Women, Art & Computing 1960–1991

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Cover image: **Fig. 3** Installation view of *Radical Software: Women, Art & Computing 1960–1991* at Mudam, Luxembourg, 2024–25, showing *Untitled*, by Charlotte Johannesson. 1981–85. Digital computer graphics slide shows, dimensions variable. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).

Radical Software: Women, Art & Computing 1960–1991

by Marilena Borriello • 16.01.2025

In recent years there have been numerous exhibitions dedicated to ‘rediscovering’ female artists. Although some of these efforts may be well-intentioned, not all have sparked the kind of dialogue necessary to challenge the systems that have historically marginalised women’s contributions to art.¹ Some have even unwittingly reinforced the masculinist logic that has perpetuated the exclusion of women. Such conditions underscore the importance of recognising exhibitions that, through a research-driven approach, challenge restrictive interpretive frameworks and encourage viewers to move beyond the passive role of the distracted *flâneur*, engaging instead as critical thinkers.

Curated by Michelle Cotton for Mudam, Luxembourg, in collaboration with Kunsthalle Wien, *Radical Software: Women, Art & Computing 1960–1991* [FIG.1](#) is firmly rooted in this objective.² Taking its name from the influential American journal *Radical Software* – which in the 1970s and 1980s explored the intersection of technology, art and politics – the exhibition is the first comprehensive survey of digital art to adopt a feminist perspective. It features over one hundred works by fifty artists, encompassing painting, sculpture, installation, film [FIG.2](#), performance and computer-generated drawings [FIG.3](#) and texts. They date from the pre-internet era, between the 1960s – a period marked by mainframe experimentalism, when artists and researchers investigated the potential of large, centralised computer systems – and the early 1990s. The works document the efforts of women who employed technology as both subject and medium, often integrating it in inherently computational ways. However, it must be noted that the term ‘feminist’ does not necessarily guarantee a sound critical framework, as attested by the breadth of approaches and reflections that the movement has encompassed in recent decades, some of which are even self-reflexive.

Indeed, alongside the radical feminist theories of the 1970s, such as those of Carla Lonzi and Geneviève Fraisse, who called for a dismantling of the patriarchal conception of art and advocated for structural rather than symbolic transformation, more recent perspectives have emerged that are sharply critical of feminism itself. Contemporary scholars such as Nancy Fraser and Angela McRobbie have warned of the potential for feminism to be co-opted by neo-liberal forces. McRobbie refers to this phenomenon

as 'faux feminism', a weakened ideology appropriated as a marketing tool and a means of garnering support.³ Within this framework, feminism inevitably risks becoming an empty, performative gesture, rather than a serious critical engagement, thereby perpetuating the power dynamics that have long marginalised women in the art world. *Radical Software* diverges from these concerns. Rather than merely presenting a group of artists with shared interests, the exhibition explores how technology has been integrated into creative practices to achieve various ends, from subverting the computer's logical language to questioning authorship and envisioning a post-human identity.



Fig. 1 Installation view of *Radical Software: Women, Art & Computing 1960–1991* at Mudam, Luxembourg, 2024–25. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).

The feminist discourse that is woven through the exhibition intersects with a critical reflection on the construction of historical narratives within digital art. As a result, the male figure is progressively decentred, making room for an alternative narrative of generative art, a practice in which the creative process is no longer solely human but involves autonomous systems, such as algorithms and software, which operate according to predefined rules. The work of art emerges from the interplay between each artist's intention and the autonomy of the technological system employed. *Radical Software* can therefore be seen as an exhibition that uncovers the archaeology of digital aesthetics, focusing on those excluded from this narrative despite having made significant contributions to its development.

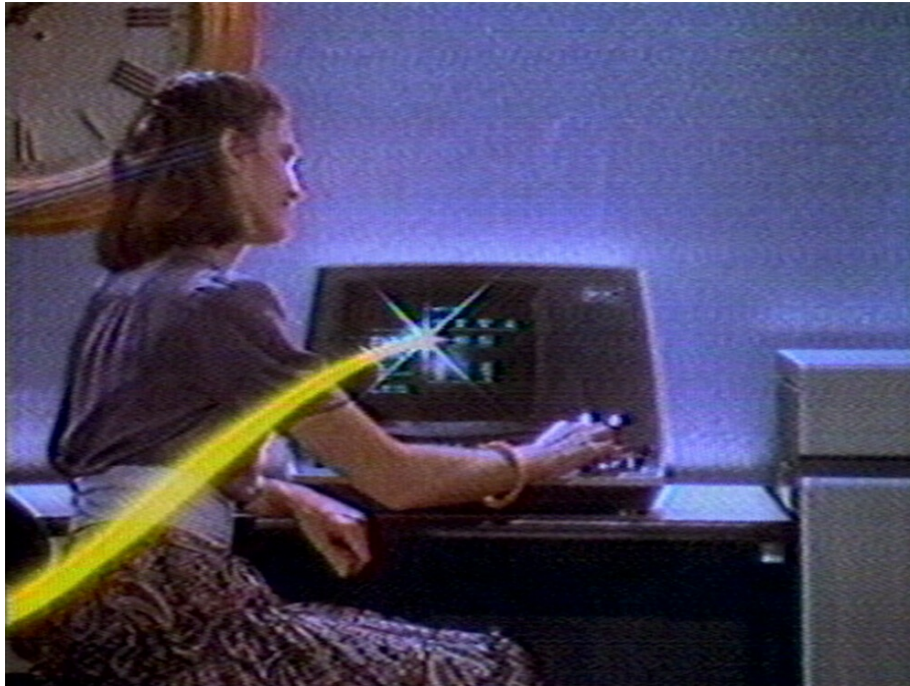


Fig. 2 Still from *Pop-Pop Video: Kojak/Wang*, by Dara Birnbaum. 1980. Video, duration 3 minutes. (Courtesy the artist and Electronic Arts Intermix, New York; exh. Mudam, Luxembourg).

The catalogue, which includes critical analyses and historical insights, draws out a deep-rooted gender divide within computer science.⁴ Software programming has historically been associated with women's work, whereas hardware has been considered the domain of men. This distinction, seemingly technical at first, conceals a prejudice that relegated women's contributions to 'automated work', perceived as devoid of creativity and intellectual value. By contrast, male involvement, linked to the physical control of machines, was elevated to a symbol of power and innovation. This social construct has reinforced a value hierarchy that remains influential in the contemporary technological imagination.⁵

The exhibition is largely chronological and is structured in five sections: 'Zeroes and Ones', 'Software', 'Hardware', 'Home Computing' and 'I would rather be a cyborg than a goddess'. It charts a trajectory of works produced in academic and industrial computer labs in the 1960s and 1970s to those made on early personal computers in the years leading up to 1991, when the internet became publicly accessible. The exhibition opens with such artists as Hanne Darboven (1941–2009), Vera Molnár (1924–2023), Ulla Wiggen (b.1942) FIG.4 and Elena Asins (1940–2015), who challenged the notion of sterile automatism with their innovative approaches. Although some of their early works are manual and created through automatic, repetitive gestures – such as Darboven's daily practice of *Schreibzeit* ('writing time') FIG.5 – they nonetheless paved the way for reflections on the creative process as a system, laying the foundations for the integration of logical structures in artistic practice. An example is Asins's *3 in 3*

Perspective Scale 33 newplan **FIG.6**. After attending seminars at the Centro de Cálculo at the University of Madrid, where she had access to IBM computers for artistic and scientific experimentation, the artist began creating algorithmic works. In this piece, she used an algorithm to generate a sequence of Necker cubes, which change slightly from one board to the next, demonstrating an ongoing evolutionary process.



Fig. 3 Installation view of *Radical Software: Women, Art & Computing 1960–1991* at Mudam, Luxembourg, 2024–25, showing *Untitled*, by Charlotte Johannesson. 1981–85. Digital computer graphics slide shows, dimensions variable. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).

A central theme emerges from Asins's work and that of the other artists featured in the exhibition: the intent to challenge the traditionally rational paradigm associated with computers and explore the infinite artistic possibilities afforded by computational logic. For *House of Dust* **FIG.7** Alison Knowles (b.1933) employed a Siemens System 4004 computer, programmed with FORTRAN IV by the composer James Tenney, to generate a poem that examines the randomness and unpredictability of the creative process. The final result, which is exhibited here, was printed on paper by a dot matrix printer. Knowles provided the logic of the work by creating four lists of words that generated quatrains to describe a house, its materials, location and inhabitants. The work therefore addresses how technology can open new creative possibilities, transcending traditional narrative boundaries. In this context the computer, devoid of poetic intentionality, becomes a co-author, giving rise to a fascinating paradox: the absence of a lyrical human subject renders the images more enigmatic and universal, transforming the poem into a process that mirrors the randomness of life itself. This reflection on the delegation of creativity resonates with contemporary artistic collaborations with artificial intelligence, broadening the concept of authorship to include systems capable of producing unpredictable results.

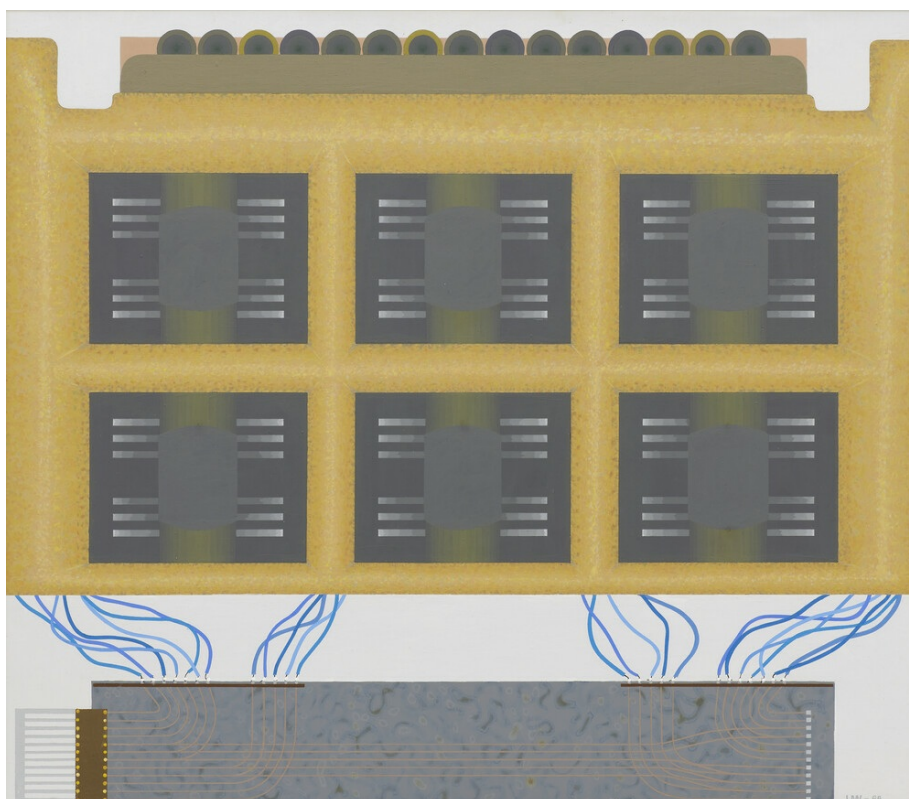


Fig. 4 *Oändligt variabel (Infinitely variable)*, by Ulla Wiggen. 1968. Acrylic on panel, 53 by 60 cm. (T&C Collection; courtesy Galerie Buchholz, Cologne; exh. Mudam, Luxembourg).

A dialogue emerges between the human and the technological, evoking the hybrid figure of the cyborg. This connection is explored in the exhibition through works that present a new relationship between the body and technology. *X-Ray Woman* [FIG.8](#) and *Self-Portrait as Another Person* [FIG.9](#) by Lynn Hershman Leeson (b.1941) probe the fluidity of identity, blurring the lines between who we are and who we might become. In *Self-Portrait as Another Person*, a wax cast of the artist's face, disguised with a wig and lipstick, becomes a medium for reflecting on the ambiguity of selfhood and the illusion of control. The sound of her breath, recorded during a stay in hospital, along with a sensor that triggers personal questions, prompts the viewer to reconsider identity as something suspended between the real and the artificial. Hershman Leeson's work questions the notion of a stable subject, positioning technology as an extension of both body and psyche – a vehicle for mining the complexity of being. Anticipating post-human thought, her practice prefigures Donna J. Haraway's cyborg theory, which holds that the body is not confined to its biological essence but shaped by technology. This also resonates with Legacy Russell's 'glitch feminism', which sees the glitch as an interruption of conventions that opens pathway to non-binary and non-normative identities.⁶

These ideas raise crucial questions about the potential of technology, not just as a tool but as an active force in how we

define ourselves. Whereas Hershman Leeson dissolves the separation between body and subject, *NO NO NOOKY T.V.* FIG.10 by Barbara Hammer (1939–2019) examines this theme from a different perspective. Created with a 16mm camera and an Amiga computer, the work investigates the body as a technological and cultural construct, proposing fluid and hybrid identities born from human and digital interaction. Hammer reflects on sexuality and lesbian identity, using technology as a means of emancipating herself from heteronormative and patriarchal views, and in doing so transforms the machine into a tool for self-affirmation.

As with Russell's notion of the glitch – which is not merely an error but an unexpected opening, a space of refusal and subversion – *Radical Software* can be seen as an act of both disconnection and reconnection to the official narrative of art. It creates an interruption that allows what has been hidden or marginalised to emerge, not out of a purely celebratory impulse, but for its intrinsic value, deconstructing power hierarchies and challenging historical narratives without succumbing to the logic of a superficial feminism.



Fig. 5 Installation view of *Radical Software: Women, Art & Computing 1960–1997* at Mudam, Luxembourg, 2024–25, showing *Ein Jahrhundert-ABC*, by Hanne Darboven. 1970–71. Ink on lined paper, 19 panels, each 179 by 149 cm. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).

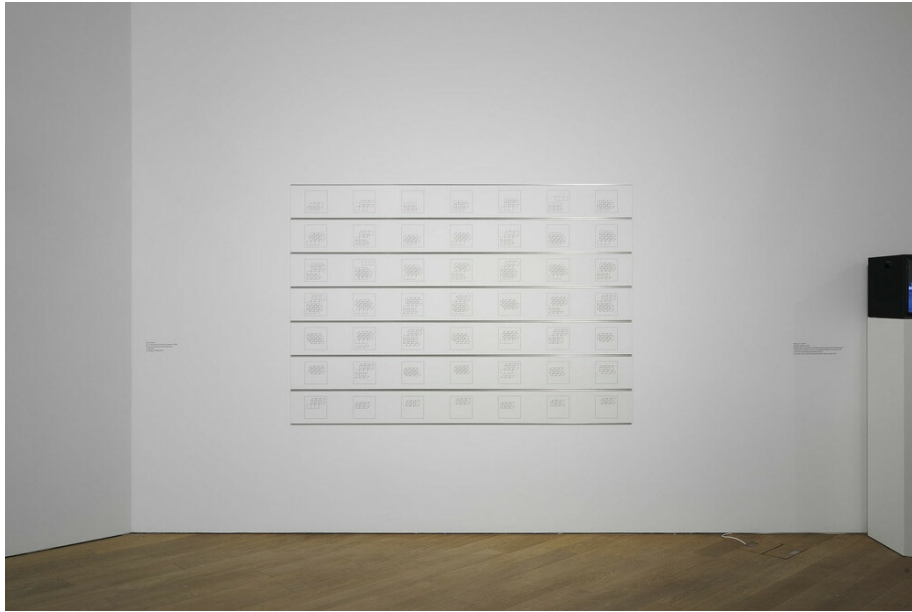


Fig. 6 Installation view of *Radical Software: Women, Art & Computing 1960-1991* at Mudam, Luxembourg, 2024-25, showing *3 in 3 Perspective Scale 33 newplan*, by Elena Asins. 1989. Computer drawing on fanfold paper, 7 parts, overall dimensions 147 by 214 cm. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).



Fig. 7 Installation view of *Radical Software: Women, Art & Computing 1960-1991* at Mudam, Luxembourg, 2024-25, showing *House of Dust*, by Alison Knowles. 1967. Dot Matrix printer, continuous paper, ribbon cartridge, microcomputer, 2 micro-SD cards, 2 USB cables, 1 220V AC cord, 1 USB power supply block, 1 USB to mini USB adapter and 2-speed poem generating software and data, dimensions variable. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).

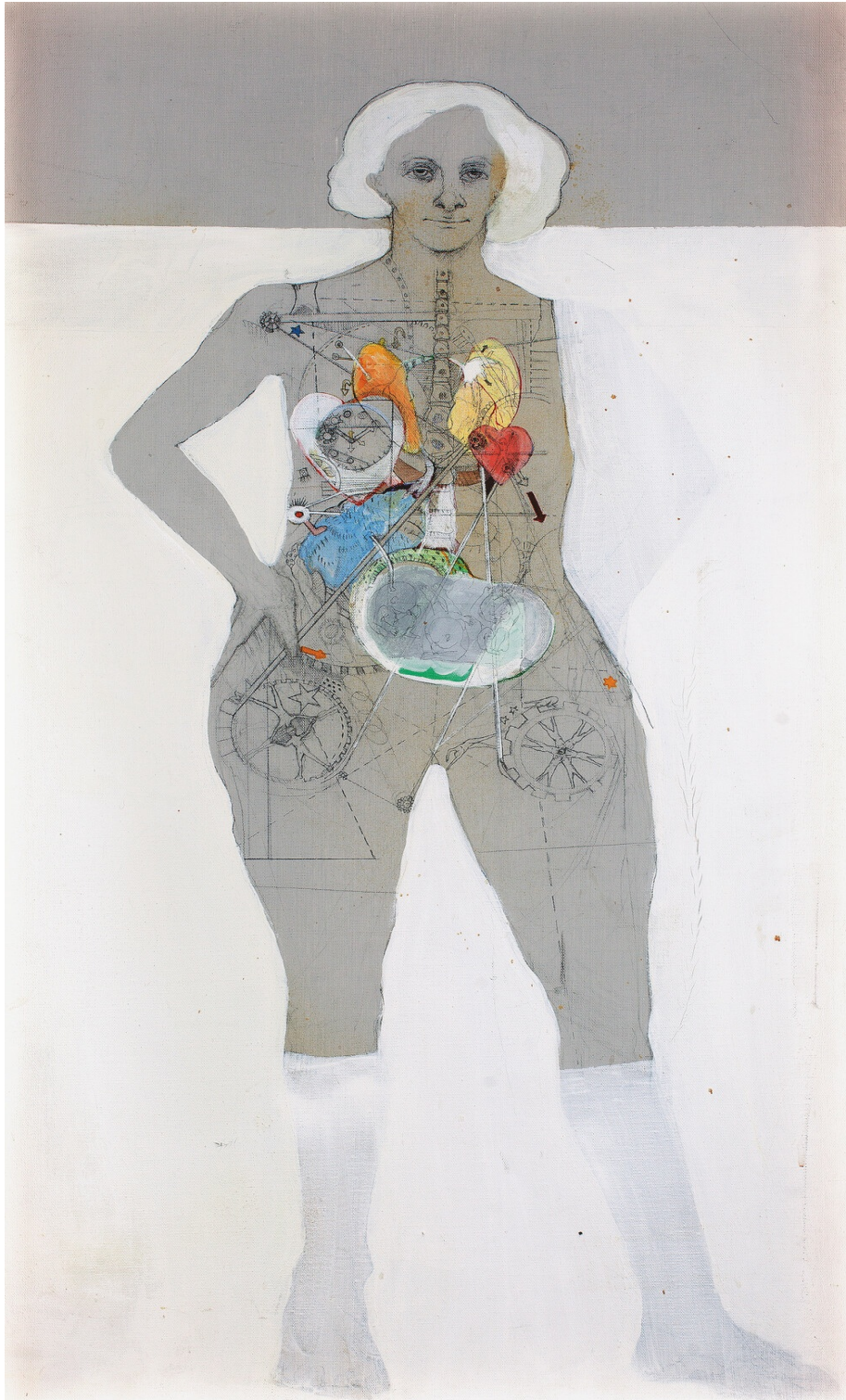


Fig. 8 *X-Ray Woman*, by Lynn Hershman Leeson. 1966. Pencil, acrylic and pen on canvas, 93 by 48.7 cm. (Hartwig Art Foundation; courtesy the artist; exh. Mudam, Luxembourg).



Fig. 9 Installation view of *Radical Software: Women, Art & Computing 1960-1991* at Mudam, Luxembourg, 2024-25, showing, on the right, *Self Portrait as Another Person*, by Lynn Hershman Leeson. 1965. Wax, wig, glass eyes, makeup, tape recorder, Plexiglass, wood sensor and sound, 50.8 by 38.1 by 30.5 cm. (Courtesy Mudam, Luxembourg; photograph Mareike Tocha).

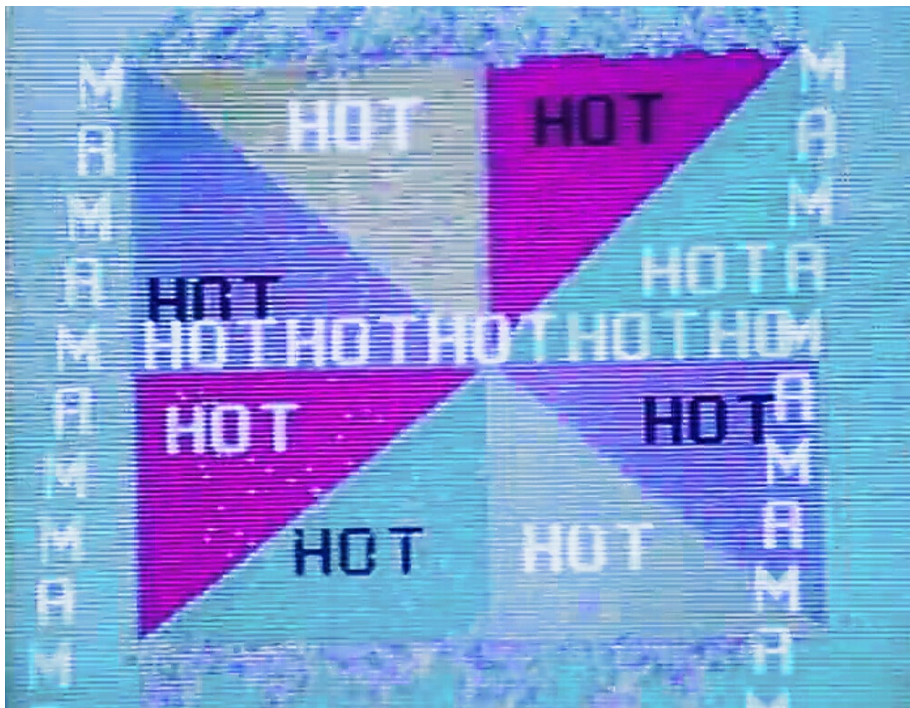


Fig. 10 Still from *NO NO NOOKY T.V.*, by Barbara Hammer. 1987. 16mm film transferred to digital file, duration 12 minutes. (Courtesy Estate of Barbara Hammer and KOW, Berlin; exh. Mudam, Luxembourg).

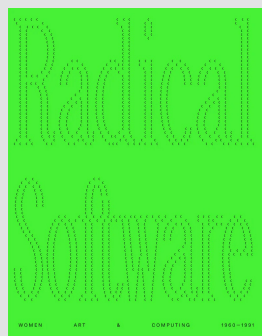
Exhibition details

Radical Software: Women, Art & Computing 1960–1991

Mudam, Luxembourg

20th September 2024–2nd February 2025

About this book



Radical Software: Women, Art & Computing 1960–1991

Edited by Michelle Cotton

Mudam, Luxembourg, and Walther König,
Cologne

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Footnotes

- 1** See G. Nugent: 'Celebrating women artists and forgetting feminist art histories', *Burlington Contemporary* (23rd March 2023), available at [contemporary.burlington.org.uk/articles/articles/celebrating-women-artists-and-forgetting-feminist-art-histories](https://www.contemporary.burlington.org.uk/articles/articles/celebrating-women-artists-and-forgetting-feminist-art-histories), accessed 15th January 2025.
- 2** The show will travel to Kunsthalle Wien, Vienna, where it will be on view 28th February–25th May 2025.
- 3** See A. McRobbie: *The Aftermath of Feminism: Gender, Culture and Social Change*, Thousand Oaks 2008.
- 4** Catalogue: *Radical Software: Women, Art & Computing 1960–1991*. Edited by Michelle Cotton. 224 pp. incl. 144 col. + 62 b. & w. ills (Mudam, Luxembourg, and Walther König, Cologne, 2024), €38. ISBN 978-3-7533-0734-3.
- 5** See M. Cotton: 'Women of the integrated circuit', in *idem, op. cit.* (note 1), pp.79–114, esp. p.82.
- 6** See L. Russell: *Glitch Feminism: A Manifesto*, London and New York 2020.

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