

A.R.t distorting reality: augmented immateriality in *Mixed Signals* by kennedy+swan

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ABSTRACT:

With the rapid evolution of digital technology, both artificial intelligence (AI) and augmented reality (AR) become increasingly accessible to the general public. As a result, contemporary artists have begun incorporating these technologies into their work, expanding beyond the established mediums of the arts. In this paper, I study the artist's book *Mixed Signals* (2023) by kennedy+swan, a contemporary iteration of the genre that merges the conventional codex of the book with the digital, by incorporating interactive AR elements into the work. Primarily characterised by their self-referentiality, artists' books often turn the medium itself into the subject matter of the work. Accordingly, the simultaneously tactile and digital materiality of *Mixed Signals* is one of its central themes, along with commentary on the meaning of AI and other forms of non-human intelligence, expressed throughout a series of nature-themed watercolours that transform into interactive augmented artworks through a smartphone app. These complex virtual artworks, I argue, not only act as an expansion of the book's narrative, but also constitute a contemporary form of artistic expression that merges the material and immaterial. I further suggest that *Mixed Signals* challenges the concept of an anthropocentric society through its technology-induced distortion of reality.

KEYWORDS: Artists' Books, Augmented Reality, Artificial Intelligence, Digital Materiality, Contemporary Art, Book Arts, Interactive Art

ACKNOWLEDGEMENT

This work is financed by Portuguese national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the jurisdiction of the Ministry of Education, Science and Innovation, under the scope of grant 2024.01584.BD.

1. Introduction

The artist's book can be understood as an artform that uses the book as its medium of expression. Since the coining of the term in 1973 by curator Diane Vanderlip (White 2014, 227), contemporary discussions about this genre no longer centre solely on the physical book form. With the rapid development of digital technology, it became possible for artists' books to incorporate digital elements into their "production, presentation and reception" (Hildebrand-Schat 2021, 1). Instances of artistic book design featuring complex virtual worlds can be found in works from as early as the 1990s, such as Laurie Anderson's *Puppet Motel* (1995), an interactive CD-ROM presenting its different chapters in the form of virtual 'motel rooms.' Such examples of digital materiality are becoming more prevalent in recent artists' books, contributing to the continued expansion of the genre into the digital space. Among the manifestations of this evolution is the integration of technologies such as artificial intelligence (AI)¹ and augmented reality (AR)² into artistic production, resulting in hybrid artists' books that "connect the analogue and material, on the one hand, and the digital and immaterial, on the other" (Schulz 2021, 133), thus combining digital media with conventional book structure. This is the case with *Mixed Signals* (2023), an artist's book created by the German artist duo Kennedy+Swan.

In this paper, I examine how *Mixed Signals* combines the materiality of the conventional codex of the bound book with the apparent immateriality³ of AR as a

¹ *Artificial intelligence* (AI) can be defined as "the capability of computer systems or algorithms to imitate intelligent human behavior" (*Merriam-Webster*, s.v. "artificial intelligence (*n.*)," accessed January 20, 2025, <https://www.merriam-webster.com/dictionary/artificial%20intelligence>.). Different forms of AI have emerged throughout history, from 'machine learning' systems that draw on historical data, to 'generative AI' technology that can create original content (Stryker and Kavlakoglu 2024).

² The term *augmented reality* (AR) generally refers to an interactive experience that overlays computer-generated content with the real-world environment. Notably, "AR's inherent difference from VR [virtual reality] is that although there is virtual content, that content is overlaid upon a visual representation of the physical" (Lichty 2014, 325). In other words, while VR creates a separate digital world, AR combines digital elements with the viewer's reality.

³ The development of digital media has contributed to increasing discourse surrounding the relationship between the concepts of digitality and (im)materiality, with a focus on how the perceived immateriality of the internet and other digital spaces conflicts with the energetic and material waste they produce (Hassan 2020, 141). In the context of hybrid artists' books, the digital elements contrast with the conventional codex to emphasise the book form in a self-reflexive manner, in which "confronted with seemingly 'immaterial' electronic texts, the materiality of the book [becomes] noticeable, too [...]. In a market flooded with standardised, mass-produced prints, untypical, irregular formats can be perceived as significant, drawing the readers' attention to the

means of contemplating the intersection of technology and the natural world. With a series of nature-themed watercolours that transform into interactive AR artworks through a smartphone app, *Mixed Signals* provides commentary on topics such as the meaning of AI and the human impact on nature. Through the intersection of the tactile and the digital, I argue, these technologically complex artworks act as a continuation of the narrative within the artist's book. I further suggest that this work, as a means to convey its theme of challenging the concept of an anthropocentric society, distorts reality through its simultaneously material and immaterial form. To this end, I firstly define the concept of the artist's book and demonstrate the significance of the relationship between its materiality and meaning. Following this, I apply this framework in the examination of the work's use of intersecting materiality, as well as how this relates to the themes of converging technology and nature through a content analysis of selected pages of the artist's book. Finally, I discuss how *Mixed Signals* challenges the established preconceptions of the artist's book as a genre, and the role of its unique, reality-distorting materiality in the creation of narratives.

2. Defining the artist's book

As far as the definition of artists' books is concerned, it can be difficult to narrow down the term to an inventory of specific characteristics. Despite being a subset of the book arts, an umbrella term which generally refers to "all forms of expression pertaining to the book" (Fajfer 2010, 139), artists' books are frequently a topic of debate regarding which phenomena contribute to their respective categorisation, as they can include "one-of-a-kind, limited edition printings, or mass-produced works" (Burkhart 2007, 25). In her work *The Century of Artists' Books* (2004), American artist and academic Johanna Drucker develops theories about the complex definition of the genre and its relationship to the book form, briefly defining the artist's book as being created as an original work of art and not a reproduction of an existing work (2004, 2). Equally central to the discourse revolving around artists' books is the concept of the *self-reflexivity* of the book form. This refers to the theme commonly found in artists' books, in which these works often feature self-reflexive commentary on their own book-like materiality

form and making them wonder about motivations for these deviations from standards" (Bazarnik 2021, 47).

and are notoriously “self-conscious about the elements of book structure” (Drucker 2004, 161). This establishes consciousness of the material form as an integral component of the genre (Schmitz-Emans 2019, 48), which can be found in most iterations of artists’ books. Despite this, these works need not always adhere to the codex of the book i.e. the conventional bound format (Schmitz-Emans 2019, 26; Drucker 2004, 121), providing artists with a “flexibility of format” (Drucker 2004, 81) that allows certain iterations of the artists’ books to extend beyond the physical limitations of the book format.

The idea of the modern artist’s book can be related to the *democratic multiple*, i.e. a publication that can be easily and cheaply reproduced and distributed to a large audience (White 2012, 46–47), which became particularly important “in the post-1945 era of art and literary activity” (Drucker 2004, 69). The transition in the late twentieth century from individually handcrafted artworks to larger, democratic editions enabled artists to reach a wider audience while remaining “conceptually linked to the finished product” (White 2012, 46). As an artform that could be cheaply produced and easily distributed, artists’ books promptly became associated with politically motivated and revolutionary activity (Burkhart 2007, 25; Drucker 2004, 2). Historically connected to the *avant-garde* movement (Drucker 2004, 45), artists who created these works challenged power structures within the art industry by distancing themselves from the gallery system (White 2012, 46) and instead distributing their work to a more diverse audience. The cultural perception of artists’ books later changed into a more accessible genre, due to the “abrupt political and economic shift” (White 2012, 50) towards the end of the twentieth century, which coincided with the advent of the internet and digital technology.

Accordingly, technological advancements towards the turn of the millennium enabled artists to begin incorporating digital elements into their work. The widespread introduction of the personal computer into the household (Hildebrand-Schat 2021, 1–2; Schmitz-Emans 2019, 53–54), together with the rapid evolution of the internet, radically broadened the possibilities of artistic book publishing (White 2012, 51), allowing artists to design, publish, and distribute their works fully independently. Additionally, the possibility to distribute artists’ books through the internet could lead to these artworks reaching a wider and more varied audience, which is fundamentally evocative of the historically democratic nature of the genre. Artists were further drawn to the virtual medium of the internet due to its fluidity,

in the sense that it “not only allows for possible interaction with viewers but also retains the unlimited potential for future alterations of aesthetic decisions and end results” (Boehme 2000, 37).

From a historical and cultural perspective, “artists for whom the book is a primary medium have always been interested in technological advance” (Lovejoy 1997, 115) and often utilise material innovations in a self-reflexive manner in their work. The evolution of book production and distribution means has allowed artists to adapt their artworks to the digital format, while remaining conceptually connected to the original idea of the genre. Consequently, it is no surprise that contemporary artists have continuously accompanied the development of digital technology into the twenty-first century, and thus begun including technologies such as AR and AI in their artists’ books, both in practice and conceptually. In this sense, the hybridity of *Mixed Signals*, as a work that embodies both physical and digital elements, ultimately illustrates the flexibility of format that this artform affords, as its AR dimension expands out of the page, and into the reality of the viewer. Likewise, this hybridity also invokes the historically democratic origins of the genre, not only through the incorporation of a smartphone app that can be widely distributed,⁴ but also in the way in which the work’s AR elements reveal a narrative that reflects topics of environmentalism, linking *Mixed Signals* to the politically affiliated roots of the genre. Therefore, the evolution of artists’ books becomes relevant in the analysis of digitally augmented art in works like *Mixed Signals*, as their cultural context and conceptual characteristics are what characterise such examples of the genre, which can at first appear unrelated to the book form, as contemporary iterations of the artist’s book.

3. Intersecting (im)materiality

Mixed Signals is an artist’s book by Kennedy+Swan, a German duo composed of the artists Bianca Kennedy and Swan Collective. Originally commissioned for the project *Ether’s Bloom: A Programme on Artificial Intelligence*, which took place from October 2023 through January 2024 at the artistic institution Gropius Bau in

⁴ As of the writing of the article, while the physical copy of the book can only be purchased through the artists’ website, the accompanying smartphone app can be downloaded for free. Additionally, the AR function is compatible with the digitalised watercolours in the artist’s book, all of which are available on the artists’ website (Kennedy+Swan. n.d.), thus allowing the artwork to reach a wider audience beyond the viewers of the physical book.

Berlin, Germany (Gropius Bau 2023), *Mixed Signals* consisted of a series of twenty printed watercolours that could be augmented using a specially designed smartphone app. As a result of *Ether's Bloom*, which focused on “a programme of artistic investigation and speculation on artificial intelligence in close collaboration with artists, writers and scientists” (Gropius Bau 2023), the *Mixed Signals* installation, including its AR elements, was additionally compiled into an artist's edition. This publication can be viewed independently, despite containing a brief afterword describing its affiliation to *Ether's Bloom* (Meister 2023, 24–25), and is described by Kennedy+Swan themselves as “[a]n artist's book about animal communication that can be scanned with your smartphone” (Kennedy+Swan, n.d.).

While at first this may seem to contradict the established notion that “[a]rtists' books are works made as *primary* works of art – not reproductions of existing work that merely use a book format” (Drucker 1997, 94), the central form of artistic expression of *Mixed Signals* lies upon its use of AR, which is operated through the same app used within the original commissioned exhibit. In this sense, the scannable watercolours simply serve to activate the *actual* primary work of art through the accompanying smartphone app, for which “[t]he thick cardboard pages of the book are perfect” (Kennedy+Swan, n.d.). Using the book medium, the artist's book thus acts as an extension of the installation beyond the confines of the exhibition space, allowing it to reach a wider audience and herewith invoke the genre's democratic origins. This not only differentiates this work from a regular exhibition's catalogue, but also characterises *Mixed Signals* as a form of the artist's book that combines the use of the conventional codex of the bound book with contemporary growing technologies. The *Ether's Bloom* programme further explores the use of these technologies in the arts, particularly focusing on “discussions about artificial intelligence, its ethics and practices” (Gropius Bau 2023), and describes the subject matter of *Mixed Signals* as follows:

The new commissioned work *Mixed Signals* (2023) delves into the intriguing relationship between Artificial Intelligence, non-human communication systems and our human perceptions of them. While AI is often seen as a symbol of our alienation from nature, this series of watercolours and AR works reveal unexpected ways to think about different forms of intelligence in flora and fauna and how to engage with them. (Gropius Bau 2023)

Mixed Signals explores this connection between nature and technologic innovation by imagining ways in which modern technology allows humans to decode and

translate nature's language⁵, which ultimately leads to an existential questioning of humanity's dominant role as the sole intelligent species: "Is humanity prepared to embrace the profound insights offered by Nature's own sonic dialogues?" (kennedy+swan 2023, 4). As already discussed, the use of self-reflexive materiality to convey meaning is a frequent theme within the overall genre of artists' books, *Mixed Signals* being no exception. Its main subject matter, with a focus on the ideological contrast between nature and technology, is reflected in the work's hybrid medium, which centres on the intersection of two conflicting materialities: the physical and the digital. The paradoxical consolidation of virtual elements and the conventional book codex, in relation to the self-reflexiveness of the artist's book, has been continuously questioned since the advent of digital technologies. In an article published towards the end of the twentieth century, Drucker argues that the electronic medium alone is unable to reproduce the self-conscious nature inherently linked to the book form:

The point is that a degree of self-consciousness about these effects permeates artists' books in a way that resonates into the viewer/reader's general experience of books as a whole. There is a seductive quality to material and tactile sensation with which we are familiar as readers, even if in the normal reading situation we tend to ignore its significance. That such properties do not transfer into the virtual environment of electronic media goes without saying. (1997, 95–96)

Drucker continues to argue in favour of the fundamental role of the physical book in the creation of artists' books, by describing how the structure of the conventional form, the limited space of the page in particular, acts "as a fundamental way that interconnections among visual or verbal elements are structured into a work" (1997, 96). While it is true that artists' books may stray from the conventional codex, as it is possible for such works, for instance, to take the shape of "accordion folds, flipbooks, simple pamphlets" (Burkhart 2007, 25) or even that of a collection of loose pages (Schmitz-Emans 2019, 26), a conceptual connection to the book form is necessary for such an artwork to be considered a representation of the genre.

In *Mixed Signals*, the disparity between the tactile and the virtual dimensions is addressed through the introduction of a role reversal of each material. In this

⁵ Throughout the narrative of *Mixed Signals*, the exact nature of this language is never specified. A brief statement in the introduction of the artist's book, describing how "most animals and plants have their own unique forms of communication – languages that we're only beginning to decode with modern technology" (kennedy+swan 2022, 2), implies only that nature's language is unlike that of humans.

artist's book, whereas the usually malleable paper sheets consist of rigid cardboard pieces, the more complex tactile sensation of each page instead lies within its augmented state, in which three-dimensional (3D) virtual elements react to the viewer's touch through the accompanying smartphone app. Self-reflexivity is also prominent in this work, considering that each of the augmented 3D elements is "largely handcrafted in the form of miniatures, sculptures, and drawings, [and] then digitized to complete the augmented reality overlay" (Kennedy+Swan 2023, 4). This contributes to the idea that artists' books often disturb conventions of their form by overtly referencing their own material structure "through an emphasis on the features of the page and pointing to the book as a whole" (Drucker 2004, 161). *Mixed Signals* adheres to this convention of self-referentiality through an accentuation of its book-like materiality, as the work reinvents the space of the two-dimensional page using AR technology, in order to bring to life digitised versions of the artists' handcrafted artwork. In this sense, the conventional features of the page are challenged through the introduction of this 3D space, while the tactile properties of the physical form are conceptually preserved and reproduced within the interactive AR environment. This is particularly evident within the back cover of the book, which can be scanned to reveal a virtual ape's hand that seizes the book and flips it as if to examine the front cover, further highlighting the structure of the book object itself. Having said that, the importance of self-reflexivity in the material in the creation of artists' books can be related to the genre's tendency towards providing social commentary, on which Drucker further elaborates:

Self-consciousness and self-reflexivity in any art form require a critical language which describes structures and methods. Such a language is termed 'metacritical' – it is able to articulate critical issues rather than engage with formal or thematic concerns. There is always an aspect of metacritical thought to any work which calls attention to itself and its production. (Drucker 2004, 161)

Accordingly, *Mixed Signals* utilises such methods of self-commentary on its own materiality to engage with contemporary ideological discussions surrounding AI. Towards the beginning of the work, which opens with a scannable front cover and endpaper⁶, the following question is posed: "How can something as technical as Artificial Intelligence – often associated with our alienation from Nature – help us

⁶ Endpaper refers to the page situated "flat against the inside of the front or back cover of a book and [...] at the base to the first or last page" (*Merriam-Webster*, s.v. "endpaper (n.)," accessed April 25, 2024, <https://www.merriam-webster.com/dictionary/endpaper.>). In *Mixed Signals*, this refers to the pages between the front cover and the introductory text.

listen to and communicate with non-human beings?” (kennedy+swan 2023, 4). This introduces the work’s exploration of modern technology in relation to nature, predicting a future in which humanity is able to translate “Nature’s own sonic dialogues” (kennedy+swan 2023, 4) through the use of AI. This narrative subsequently questions the notion of an anthropocentric society, as it imagines a reality in which humans are no longer the sole intelligent species.

4. Decoding nature through AI

Following the introductory text, the first page features a white background covered with the partially smudged onomatopoeic words “WAGGLING / KNOCKING / STRIDULATING / STROKING / JERKING / GRASPING / TREMBLING / ANTENNING” (kennedy+swan 2023, 6), which are written in dark watercolour paint. The word “antenning” in particular invokes an insect-like presence, which is later confirmed through the scanning of the page through the AR app. This reveals a 3D model of a bee, painted in the same monochromatic style as the watercolour words, as the source of the “sound” on the original page. This bee hovers over a hexagonal window, reminiscent of a honeycomb shape, through which a video of different architectural structures can be seen. In addition to this, the viewer is presented with yet another sensory dimension, as an audible sound of wind, produced by the AR app, accompanies the bee’s flight. In *Mixed Signals*, every page contains additional information that can be accessed through this smartphone app, providing context for the narrative of each individual watercolour. Through this feature, the viewer learns that this video consists of drone footage of the spaces inside Gropius Bau, where the *Ether’s Bloom* exhibit took place. In addition to this, the drone is paralleled with the augmented bee, “a biological drone [...] conveying dance signals to its fellow hive members as it interacts with its environment.” (kennedy+swan 2023, 6).

This theme continues into the following page, which depicts a painting reminiscent of a botanical encyclopaedia, featuring illustrations of three types of flowers – namely, cowslip, snowdrop, and primrose (kennedy+swan 2023, 7). Painted with a dichromatic palette of dark purple and green, the watercolour portrays these different plants at varying stages of growth and bloom, as well as a bee pollinating the flower of a snowdrop plant. Once scanned, the augmented artwork emits a loud buzzing sound before a swarm of bees surrounds both the page

and the viewer. Additionally, the flowers on the page begin visibly secreting pollen and nectar as the bees approach them. According to the painting's description within the AR app, a specific scientific phenomenon, in which certain flowers "increase their nectar production in response to the sound of an approaching bee swarm" is cited as the inspiration for the artwork, particularly the fact that "the reaction is the same whether the sound comes from an actual swarm of bees or is merely played through a loudspeaker" (kennedy+swan 2023, 7), further incorporating the topic of intersecting technology with nature.

Both pages engage with the theme of translating nature in different ways, particularly the language of bees, using technology. Whereas the first page transforms onomatopoeic words into a bee's journey through manmade structures, the second page contrastingly deals with a swarm of bees defending their resources from a human, the viewer, as well as with a translation of the flowers' reaction to the bees' language. This acts as the viewer's first encounter with both the auditory dimension of the artist's book, and its primary theme of attempting to understand nature's language.

As the narrative progresses, the involvement of AI technology in decoding nature increases. Another painting depicts a jungle setting where a smudged figure stands in front of a computer monitor that is twice their size (kennedy+swan 2023, 11). This watercolour follows a two-colour scheme similar to that of the previously analysed page, with the person and monitor roughly sketched with dark purple paint, while the jungle foliage shown on the monitor and surrounding the figure is depicted in green. When scanned with the AR app, three large tropical plants appear with two microphones and a portable media player placed at their roots, while the sound of jungle animals and insects can be heard. Unlike the previous pages, this augmented scene is fully interactable. Touching either microphone through the app results in the appearance of a written report about the background noises, as if the viewer is conducting scientific data collection in real-time: "Analyzing audio: 64 different species detected, ~82% in healthy condition" (kennedy+swan 2023, 11). Some of these reports infer the use of AI in this reality as a means to study nature, depicting a process of rationale based on the collected audio samples, such as: "Unusually clear samples of African dove calls > decrease in echo distortion through plants > hints to deforestation" (kennedy+swan 2023, 11). As the viewer continues to interact with the microphones, suggestions of a dystopian narrative

become clearer, as one of the reports reads: “Analyzing Audio: 21 amphibians, 44 mammals, 112 birds / 17 gunshots successfully filtered out” (kennedy+swan 2023, 11).

Through the app, the viewer has the option to read a short description of the concept behind this page as well. Within the context of this artwork, “AI programs are capable of sorting through petabytes of data, deciphering hidden structures [...]. Remarkably, this approach generates far more information than traditional visual data collection methods, unlocking new potentials for understanding our natural world.” (kennedy+swan 2023, 11). In this reality, while AI facilitates the collection of information about nature, it also appears to have evolved to conceal the negative consequences of its development. This is evidenced by the fact that this AI has been trained to erase gunshots from audio recordings of nature, the implication being that technological development is in some form correlated with increased violence. Likewise, the references to deforestation contribute to this dystopic narrative of nature’s deterioration, through which *Mixed Signals* presumably provides commentary on current environmental issues.

In this sense, this watercolour can comprise a criticism of humanity’s focus on technologic advancement overshadowing our preoccupation with preserving nature. In fact, this specific painting parodies the use of advanced technologies in the study of nature, to some extent, by also depicting their weaknesses. When the viewer interacts with the augmented portable media player through the AR app, a voice can be heard saying the following phrases: “Connected to Clara’s iPhone. Disconnected. No Wi-Fi in reach. Your space on hard drive D is full. Battery low, please charge the battery” (kennedy+swan 2023, 11).⁷ This starkly contrasts with the setting and sounds of the jungle, self-consciously bringing further attention to the contraposition between the digital and analogue materialities.

Another painting, towards the end of the artist’s book, features a smudged silhouette of a humanoid pig in front of a dark background. Scanning the painting through the app shows a caption detailing the discovery of “Animalis Interpreta: the world’s first AI for interspecies communication” (kennedy+swan 2023, 21). Reading the additional context found in the AR app about this page provides further information about this alternative reality:

⁷ The character of Clara in this augmented watercolour is likely a reference to Clara Meister, the curator of the project *Ether’s Bloom* for which *Mixed Signals* was commissioned.

Exploring AI's potential to forge two-way communication between animals and humans unveiled myriad questions and thought pathways. This collection presents 14 watercolors, narrating a near future where AI unravels the language of every living creature. (kennedy+swan 2023, 21)

Accordingly, interacting with this painting through the app progressively reveals fourteen different watercolours, presented in the form of a growing stack of photographs. Each image is accompanied by a caption chronicling the development of this fictitious reality's AI for interspecies translation, including its initial use for entertainment purposes, such as “decoding the existential crisis of a cat confused by its costume” (kennedy+swan 2023, 21). As the narrative progresses, *Animalis Interpreta* begins to decipher the intricate languages of different species, such as the stingray and its use of “electromagnetic pulses as complex holograms, encoding its rich inner world” (kennedy+swan 2023, 21), introducing the idea that animals in this narrative are capable of intelligent thought, and have a form of communication so complex that it can only be translated through AI. This chronicle proceeds to delve into a dystopia, a recurring theme in *Mixed Signals*, as a painting of a young girl standing next to a flock of chickens appears, with its caption reading: “But when a young girl decoded chickens' grievances about farm life, the novelty faded. It was an unsettling echo of an industrial age that had long lost its innocence.” (kennedy+swan 2023, 21). Herewith, it becomes clear that humanity's efforts to decode nature, in this watercolour's narrative, are merely in the interest of commodifying knowledge and technology, and not a means to develop meaningful interspecies connections. Eventually, *Animalis Interpreta* shows that some animals are unwilling to communicate with researchers, and even consider themselves superior to people, leading researchers to the conclusion that humans are “the loneliest species, the only ones desperate enough to reach out ... to force a conversation” (kennedy+swan 2023, 21).

This series of watercolours tells a detailed narrative about a near future in which communication with other species becomes possible, while providing simultaneous commentary on the work's contemporary society. Not only does this chronicle criticise humanity's lack of prioritisation of nature's wellbeing, depicting blatant unconcern for animals after their discontent with their role in society is no longer a novelty, but it also critiques our tendency to impose anthropocentric standards onto nature. This is accordingly represented by the final revelation that

other, non-human species could be superior to us, a reality which humanity is unwilling to accept: “Every door the AI had opened led to a new understanding. But the truth behind these doors was unbearable for us to face.” (kennedy+swan 2023, 21).

Consisting of fourteen separate watercolour paintings, this page most overtly combines the AR element of *Mixed Signals* with the structure of the book form. The initial image of the humanoid pig, once scanned, transforms into a linear narrative told through a combination of images and text, which the viewer can access only by interacting with the app. Additionally, touching the screen to progress through the series of images invokes the sense of turning the pages of a book, which constitutes one of the main tactile experiences of the bound book. This self-conscious emphasis on the conventions of the book structure evidences that *Mixed Signals* “performs a theoretical operation” (Drucker 2004, 161) rather than simply using the book medium to transmit its content functionally. In other words, this work purposefully disrupts the conventions of the book form to bring attention to its themes of disrupting reality.

The topic of superior intelligence outside of the human species continues to be explored in the following page. This watercolour depicts a grid of faceless humanoid figures painted in different colours over a dark background. Scanning the page reveals a 3D model of a humanoid rabbit whose unusually large brain is contained in a jar attached to its head. The rabbit wears a chequered jumpsuit and performs a dance, while proclaiming:

And to be intelligent, first you must learn to listen. And to listen, first you must learn to hear. And to hear, first you must learn to doubt. And to doubt, first you must learn to be curious! And to be curious, first you must learn to be alive! And to be alive, first you must learn to be intelligent. (kennedy+swan 2023, 22)

This speech is continuously repeated, forming a closed loop of information meant to describe the means of attaining infinite knowledge. This is clarified in the page’s description within the AR app, which introduces the rabbit figure as follows:

The BÆB organism – Biological Artificial Evolution Bunny – represents the pinnacle of intelligence on Earth.

Its hybrid brain, a fusion of organic matter and AI, connects to an infinite reservoir of wisdom and knowledge. Having attained peak cognitive abilities, BÆB reached a state of blissful Zen in an instant.

Now, it seeks to share its profound insights with us inferior humans. (kennedy+swan 2023, 22)

Evidently, the rabbit in this narrative, or BÆB, can be considered a manmade creation, as it originates from the artificial merging of an animal with AI. Yet, despite lacking any human component, BÆB is “the pinnacle of intelligence on Earth” (kennedy+swan 2023, 22), and therefore cognitively superior to humanity as a whole. In contrast with the narrative within the previous pages, the reality in which BÆB exists provides a more optimistic perspective on the development of AI in the study of nature. Whereas the previous watercolour and AR scenes contained a correlation between technological development and dystopia, such as the AI programme trained to filter out the sound of gunshots in the jungle, BÆB is associated with pacifism, having “reached a state of blissful Zen in an instant” (kennedy+swan 2023, 22) due to its infinite wisdom. BÆB thus acts as the culmination of the conjunction of nature and technology, serving as a personification of the simultaneously material and immaterial reflected in the materiality of *Mixed Signals*.

The figure of BÆB can represent further social commentary on current society, depicting humanity’s goal towards infinite knowledge as unattainable. The impossibility of this objective is confirmed by BÆB’s monologue, stating that “to be intelligent, first [we] must learn to listen” (kennedy+swan 2023, 22), as throughout the overall narrative of *Mixed Signals* humans show an unwillingness to listen to nature, even after decoding its language, as shown in their inability to accept any forms of non-human intelligence. Once again, this can be linked to current environmental problems, as contemporary society continues to hesitate in changing established yet unsustainable practices, despite their detrimental effects on nature. *Mixed Signals* engages with these issues through the platform of the artist’s book, a genre historically related to “social and political activism” (Drucker 2004, 72), contributing to the arts’ “integral role in sounding the alarm over this looming [environmental] crisis” (Inwood 2010, 33).

Overall, as the narrative of *Mixed Signals* unfolds, the connection between nature and human society becomes increasingly linked to technological advancement. Each of the selected watercolours acts as a portal into a near yet futuristic world in which reality and AI are intertwined, challenging viewers to confront humanity’s relationship with the natural world and the possible

consequences of current and future technological developments. The dystopian implications of AI-mediated nature conservation as well as the recurring motif of interspecies communication, facilitated by AI, force viewers to confront their anthropocentric worldview and contemplate the possibility that other beings may possess forms of intelligence and communication beyond humanity's comprehension. Ultimately, *Mixed Signals* emphasises the urgent need for a more ethical and sustainable approach to our relationship with the natural world.

5. Conclusion

Disrupting the conventional book structure through the introduction of modern digital technology into its medium, Kennedy+Swan's *Mixed Signals* redefines the boundaries of the artist's book genre. This work demonstrates how contemporary artists can incorporate technological innovations into their work to challenge traditional notions of materiality and narrative construction, as it fuses the traditional concept of watercolour paintings with interactive 3D scenes brought to life through AR technology. Fundamentally, *Mixed Signals* challenges the established preconceptions of the artist's book by confronting the confines of the physical book with the materiality of the virtual space that is unconstrained by the conventional codex structure. By integrating AR elements into the work, in which each watercolour "is augmented with an interactive virtual scene, expanding the narrative of the paintings" (Kennedy+Swan 2023, 4), and inviting a deeper engagement with the artwork, this artist's book thus erases the line between the material and the immaterial.

Emphasised by its intersectional materiality, *Mixed Signals* likewise provides a multi-dimensional exploration of contrasting themes, such as artificial intelligence, interspecies communication, and humanity's relationship with nature. Rather than adhering to linear storytelling conventions, the AR elements create an interactive narrative journey that unfolds in real time, requiring the viewer to actively participate in the construction of meaning within each page. In doing so, *Mixed Signals* also challenges the notion that artistic narratives must be confined to the printed page, emphasising the transformative potential of contemporary technology in the creation of artists' books.

In the afterword of the artist's book, the project lead and curator for Gropius Bau's programme on artificial intelligence, Clara Meister, describes her first

meeting with Kennedy+Swan about the commission of *Mixed Signals*: “We sat together on a chilly Berlin winter’s day, and their dog Jane added an unexpected dimension to their VR [virtual reality] presentation by playfully licking my hand, momentarily distorting reality just a tiny bit further” (Meister 2023, 25). Central to *Mixed Signals* is its reality-distorting materiality, which acts not only as a medium of artistic expression, but also as a thematic focal point. Through its augmented dimension, the artist’s book “bring[s] together analogue books and digital media by combining and complementing one with the other” (Schulz 2021, 145), as a means of extending beyond the surface of the watercolour. Inserting itself into the surrounding environment, each watercolour transforms into an interactive scene that incorporates the reality of the viewer, distorting and transforming it into a part of the artwork.

This juxtaposition of the tactile with the virtual is reflected in the artist’s book, creating a hybrid experience that invites the viewer to question reality itself. The distortion of reality in *Mixed Signals* likewise serves to convey a critical prediction of the future, as the narrative within each watercolour and its corresponding AR scene presents an imagined reality in which technology has caused humanity to better understand, yet paradoxically further distance itself from nature. *Mixed Signals* offers a glimpse into the future through both its themes and its materiality, reimagining the possibilities of social commentary through artistic expression in an increasingly technologically mediated world. In doing so, this work reaffirms the contemporary form of the artist’s book as a genre that continues to disrupt conventions of its own medium.

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Article received on 27/04/2024 and approved on 20/01/2025.

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