

EDITORIAL

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Exploring the integration of art and technology

ABSTRACT

The integration of art and technology has emerged as a formidable force in the creative realm, presenting a wide array of opportunities and challenges. With the advent of the internet, collaborative artistic practices have flourished, while financial burdens on artists have been alleviated through democratized production software, reducing their reliance on corporate entities. Technology has empowered artists with increased creative freedom and direct engagement with their fans through social media platforms. Nevertheless, concerns have been raised regarding the authenticity of creative practices, sparking debates about the appropriate extent of technological intervention. The mainstream acceptance of artificial intelligence (AI) and augmentation technologies has further transformed the creative landscape. AI tools now cater to both professionals and amateurs, enabling diverse creative endeavours, ranging from the generation of visual art to assisting in music composition. This Special Issue delves into the profound changes that technology has brought to artistic and creative expression. The articles explore topics such as AI-generated communication, the role of AI in advertising campaigns, AI tools in music composition, technological innovations in art, light augmentation in urban

KEYWORDS

augmented reality (AR)
creative practice
artificial intelligence
(AI)
technological
innovation
artistic practice
generative art
virtual

spaces, augmented reality (AR) in literature and the integration of AR in design magazines. The overarching aim is to stimulate critical discussions regarding the future of art, creativity and the implications of technological advancements.

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INTRODUCTION

Integrating art and technology has become a significant force in the creative world, presenting opportunities and challenges for artists, creatives and consumers (Pederson et al. 2020). The advent of the internet has enabled collaborative artistic practices, enhanced sharing of artwork, and alleviated financial burdens for artists because, for example, production software is more democratized, suggesting creative people no longer need to rely on the financial support and interventions of big businesses to penetrate creative marketplaces. Technology, then, has become a means of increasing creative freedom and also entails opportunities to engage directly with fans and consumers, whom they can directly communicate with across the internet and, specifically, social media platforms.

However, technological interventions have also raised questions about the authenticity of creative practice. For example, the use of autotune in music or image-generation artificial intelligence (AI) in the visual arts space have created ethical debates about the potential reputational damage that technology can have when the talent and skill of human creators is questioned (Hughes 2015). The suggestion is that the boundaries of appropriate technological intervention continue to be debated. Whether it be the motion capture and performance technology in the commercial sector that has advanced and made ‘real’ through sophisticated construction of the virtual actor’s verisimilitude (Allison 2011; Seymour et al. 2018) or the capacity of digital projectors to project map animated experiences of Van Gogh’s greatest works across the walls of entertainment venues (*Van Gogh Exhibition: The Immersive Experience* n.d.), some technological influences have been lauded and revolutionized the production and consumption of art while others have undermined the symbolic nature of these creative products.

In the twenty-first century, we are increasingly seeing what Soreanu considers the ‘creative appropriation of contemporary technological media’ (2021: n.pag.), to the extent that Mazzone and Elgammal (2019) contend that definitions of creativity need to be revisited to address the relationship of machine creativity and human artist with greater attention needed on the role of the technical artefact in the processes of creativity. As Haworth (2018) argues, artistic expression has long been considered the purview of the people, when in fact, more attention could be levelled at the influence of technology on artistic and creative products and experiences. What is clear is that artists and creatives continue to explore the capacity of technology to evolve their craft to make it more accessible, challenge genres and conventions for both commercial, educational and intrinsic motivations.

THE MAINSTREAMING OF AI AND AUGMENTATION TECHNOLOGIES

The increased immersion of technology into arts and creative fields has more recently included the roles of AI and augmentation technologies. No longer are AI and augmentations the purview of technologists, but rather, they are penetrating the everyday production and consumption activities of professional and amateur creatives and consumers alike. For example, in recent years

1. we have seen the proliferation of applications such as DALL-E2, Midjourney
 2. and Stable Diffusion that uses AI to allow amateur and expert creatives oppor-
 3. tunities to create visual ‘masterpieces’; the use of openAI’s GPTChat AI soft-
 4. ware to help write plays and novels (Heaven 2020); augmented reality (AR)
 5. has been affiliated with game design (Lichty 2019) but has also been used
 6. as a tool in choreography development (Dube and Ince 2019) and perfor-
 7. mance (Brockhoeft et al. 2016), and to encourage engagement in multimedia
 8. colouring books (Sing et al. 2020); the use of 3D renderings of Marlon Brando
 9. to bring him ‘back to life’ (Bernstein 2015); and in 2022, music group ABBA
 10. began their virtual concert experience, reliant on virtual humans to capture
 11. the essence of their 1970s selves (Matthews and Nairn 2023), to name a few.
 12. As Hisrich and Soltanifar (2021) have found, AI and technological augmenta-
 13. tion have become a means for activating the creativity of entrepreneurs, while
 14. Miller (2019) shows us that new creative avenues have been opened in music,
 15. gaming and artistry by marrying AI and human creativity.

16. The rapid uptake of AI tools in recent months, and the steady growth in AR
 17. device users in the last few years because of its disruptive potential (Cureton
 18. 2022) set the scene for this Special Issue. Scholars from across the globe were
 19. asked to consider the pervasive role of technology in arts and creative produc-
 20. tion and consumption. While previous research has focused on the impact of
 21. technology on artistic learning and creative education, those included here
 22. aimed to delve into the effects on artists, creatives, producers and consumers.
 23. By initiating conversations around topics such as the evolving understandings
 24. of what constitutes art and creativity, the new meanings attributed to creative
 25. assets, questions of authorship and creatorship, and the emergence of new
 26. approaches to creation, this Special Issue helped shed light on the profound
 27. changes technology has brought to the field of artistic and creative expression.

29. THE CONTENTS OF THIS SPECIAL ISSUE

30. In the first of our articles ‘Weizenbaum’s nightmare: The decay of language
 31. in AI-generated communication’, McIntyre discusses the current state of
 32. generative AI programs and their potential to replace human communication.
 33. McIntyre argues that relying on these AI programs for cultural communication
 34. would lead to a detachment from human culture and result in a state of empti-
 35. ness. Several examples, including Google’s Language Model for Dialogue
 36. Applications (LaMDA) language model, the game *AI Dungeon*, and the art
 37. installation *UUmwelt*, are analysed to support this argument. The sugges-
 38. tion, then, is that generative AI programs, despite appearing to use a language
 39. humans understand, ‘think’ in the formal language of mathematics, and their
 40. communications are merely transliterations of numbers. Consequently, using
 41. these programs may bypass moral and syntactical rules observed in human
 42. cultural communication, leading to an expression devoid of consciousness.
 43. The article concludes by warning that such a future, as envisioned by Joseph
 44. Weizenbaum, would be filled with illusions of artistic expression projected by
 45. both machines and humans but lacking true humanity.

46. Keeping with the influence of AI on creative expression, Matthews,
 47. Fastnedge and Nairn explore how image-generation tools are being received
 48. by advertising practitioners. In their article, ‘The future of advertising
 49. campaigns: The role of AI-generated images in advertising creative’, Matthews
 50. et al. discuss how AI text-to-image engines like DALL-E 2 can produce high-
 51. quality and realistic imagery that can shape advertising content. The impact
 52.

of such engines on advertising agencies and their creative workflows was examined through focus groups with advertising agencies in Aotearoa/New Zealand. The study presented new images created by DALL-E 2 to creative practitioners and analysed their responses. The themes that emerged from the analysis included aesthetics, creative practice and the role of humans vs. machines in generating creative outputs. The participants expressed both excitement and concern about DALL-E 2's capabilities, its effect on creative workflows, and the evolving nature of creative roles as computational creativity systems advance and become integrated into agency workflows.

Another of the articles in this Special Issue explores the place of AI technology in art, but this time, considers its influence on music. Kehagia and Moriarty investigate the use of AI and machine learning tools in music composition across three genres: electroacoustic composition, contemporary classical music and popular electronic music. Their article, 'Recurring patterns: An ethnographic study on the adoption of AI music tools by practitioners of electroacoustic, contemporary and popular musics', aims to understand how composers in each of the aforementioned genres employ emerging AI tools and whether the cultural context of each field influences their usage. With the accessibility of AI tools increasing, musicians are incorporating these processes into their work to explore new avenues of creativity. The article discusses the adoption of AI tools by practitioners in different genres, highlighting examples such as Benoit Carre, Holly Herdon and Actress. An ethnomusicological approach is employed, involving interviews with musicians from each genre to explore the specific AI tools used, their impact on the composition process and the level of human intervention. The study also examines how social and professional norms within each genre influence the utilization and appropriation of AI tools.

In their article, 'The NEFFIE project: Technological innovation, artistic co-creation and social augmented experience', Carraro, Sanna, Pola and Zardin introduce the NEFFIE project, a modern reinterpretation of Franco Vaccari's renowned artwork exhibited at the 1972 International Venice Art Biennale. NEFFIE (which is an acronym for Neuroaesthetic Photography) utilizes technological advancements to develop Vaccari's original concept from a contemporary perspective. The project employs an algorithm and wearable sensors within a revamped photo booth to elicit subjective emotional-cognitive responses from viewers. These responses are then transformed into 'cognitive photographs' or 'COFFIE metapictures' (79 in this issue). The metapictures are converted into non-fungible tokens (NFTs) and displayed on a virtual wall called the 'COFFIE wall', creating a virtual exhibition in real time. The NEFFIE project aims to promote social cohesion through creative participation and co-creation, and it is being developed in Milan through collaboration between the Research Center in Advanced Technology in Health and Well-Being of San Raffaele Hospital and ICONA, the European Research Center in History and Theory of the Image of Vita-Salute San Raffaele University. This interdisciplinary approach combines art-historical theory, biomedical engineering and computer science to integrate photography with technological innovation.

Exploring the value of light augmentation, Cedro and Matthews consider the evolution of light art as a form of creative practice in urban spaces. Their article, 'Between light and shadow: The impact of light augmentation on storytelling and audience engagement in urban, commercial and public spaces', offers a rich history of light art before detailing advancements in innovation and technology which have turned light art into a celebrated medium for

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1. revitalizing urban areas and creating attractive tourist destinations. The arti-
 2. cle delves into the ways in which light art has become a prominent feature in
 3. public spaces, enlivening and engaging both residents and visitors. It exam-
 4. ines how light art transforms urban environments into visually stimulating
 5. and interactive places, influencing everyday life, social behaviours and the
 6. future design of city zones. The article also explores the role of contemporary
 7. art in public spaces, focusing on events like the White Night festival and exhi-
 8. bitions that encourage audience participation and interaction, emphasizing
 9. the concept of socially engaged art.

10. Continuing the discussion to the impact of AR on creative expression is
 11. the article 'The dragon's AR: Narrative augmentation in Russell's The Dragon
 12. Defenders' by Halliday, Narayan and Frommherz. Their article discusses the
 13. use of AR in children's literature, particularly in The Dragon Defenders series
 14. by James Russell. While AR in literature has mostly been used for instruc-
 15. tional purposes, this series utilizes AR as a narrative tool, offering readers the
 16. perspective of the main characters through the technology. The integration of
 17. AR and traditional narrative systems enhances the immersive reading expe-
 18. rience and advances the story. The article introduces a case study that aims
 19. to explore how AR can enhance the narrative structure and flow in a text-
 20. based novel. By analysing the interaction between AR and the narrative, the
 21. study seeks to identify the most effective examples of this integration. It also
 22. emphasizes the goal of emancipating AR from its technological identity and
 23. establishing it as a genuine narrative device in fiction storytelling.

24. Finally, in 'Threaded Edition 21: Exploring Māori creation narratives with
 25. augmented reality-animated sonic experiences in publication design', Tavares,
 26. Grieve, Clarke and Sheehan discuss the creative strategies employed in
 27. *Threaded Edition 21*, an international design magazine based in Aotearoa/New
 28. Zealand. The editorial model draws inspiration from Māori culture, incor-
 29. porating *Tikanga*, *Mātauranga Māori* and *kawa*. The Special Edition of the
 30. magazine adopts a structural format influenced by *Māori Maramataka* ('lunar
 31. cycles') and *whakapapa* ('genealogy'), using visual cues to convey the Māori
 32. creation narrative. AR is primarily used to represent the spiritual encounter
 33. with *Te Kore*, *Te Pō*, *Te Whē Ao* and *Te Ao Mārama*, while the printed matter
 34. serves as a mysterious vessel that bridges the gap between the virtual and
 35. the real. AR animations and sonic artistry bring the pages to life, incorporat-
 36. ing *hau* ('breath of life') and providing an immersive experience for the audi-
 37. ence. The AR pages are structured with a *karakia* ('welcoming prayer') at the
 38. beginning and a *mihi* ('closing speech') at the end, acknowledging the cultural
 39. significance and dualities of Māori traditions. By scanning the AR content, the
 40. audience is directed to the Instagram platform, expanding the materiality of
 41. the printed magazine. This approach combines visual and linguistic elements,
 42. spatial and temporal dimensions, sound and virtual reality to symbolize the
 43. unseen layers and dimensions between existence and non-existence.

44. CONCLUSION

45. The integration of art and technology has become a significant and unavoid-
 46. able aspect of contemporary creative practices. This Special Issue seeks to
 47. explore the multifaceted impact of AI and technological augmentation on
 48. artistic production and consumption. By examining the evolving relationships
 49. between artists, creatives, producers and consumers, we aim to foster critical
 50. discussions about the future direction of art, the meaning of creativity, and the
 51. 52.

influence of technological determinism. As we navigate this rapidly changing landscape, it is essential to understand and appreciate the potential, limitations and implications of integrating art and technology in the pursuit of innovation and artistic expression.

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