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Civic House
Glasgow

DesignHOPES

SHIFT

SHAPING HEALTH IN FUTURE TIMES

ABSTRACTS

PLACE, PRODUCT + PRACTICE

DESIGNING FOR HEALTH AND PLANET

UKRI Arts and Humanities Research Council
FUTURE OBSERVATORY


SHIFT

Contents

Introduction

Design, as both a discipline and a mode of inquiry, is uniquely positioned to address multifaceted global challenges. Its capacity to envision, prototype, and critically interrogate solutions provides a framework for engaging with the dynamic intersections of environmental and human well-being.

Design research, in particular, offers robust methodologies for exploring emergent phenomena, engaging stakeholders, and generating actionable knowledge. By synthesising creative practices with scientific and social inquiry, design research enables new pathways for addressing sustainability, health, and their interrelations.

At SHIFT, these roles of design are being brought to the forefront, demonstrating their relevance in addressing the pressing needs of our time.

The SHIFT 2025 Symposium represents a vital platform for exploring the intersection of health, sustainability, and design through a transdisciplinary lens.

Hosted by early-career researchers from Design HOPES, the event seeks to interrogate the ways in which design practices and research can contribute to the green transition while addressing the complex challenges of human and environmental well-being in the face of a climate crisis. Through the theme *Place, Product, Practice: Designing for Health and Planet,* the symposium emphasises critical inquiry, collaborative exploration, and innovative thinking.

The keynote address by Ivor Williams explores the power of design to reimagine care systems, environments, and narratives that foster resilience and well-being.

Contributions from scholars and practitioners further expand on this discourse. Dr. Christina Cie examines visual methodologies in *Memory Sticks: Researching the Visual Pattern Recorder* while Shivam Vats explores the potential of material design in *Turning Wheat Straw into Sustainable Cutlery: A Dual Solution for Pollution and Plastic Waste.*

Martin Skelly and his team emphasise participatory methods in their work, *'Exploring Sustainable Health Priorities with Young People'.*

Konstantinos Petrakis and Dr. Andrew Wodehouse focus on technological solutions to environmental planning in *Interactive Mixed-Reality Visualisation*

for Greenspace Management, and Sanmin Tan provides an exploration of craft-based therapeutic practices in *Sculpting in Time and Environment*.

Immersive design for emotional well-being is further discussed in *Kinesis Grove* by Yukta Pathak and colleagues.

Other contributions include analyses of sustainable systems and practices, such as Dr. Sarah Bowyer's investigation into NHS greenspace programs, Rosemary Bristow and Nicholas Evans' work on sustainable textiles in healthcare, and Dr. Giulia Teverini's co-design of smart compression stockings in *An Ecology of Care*.

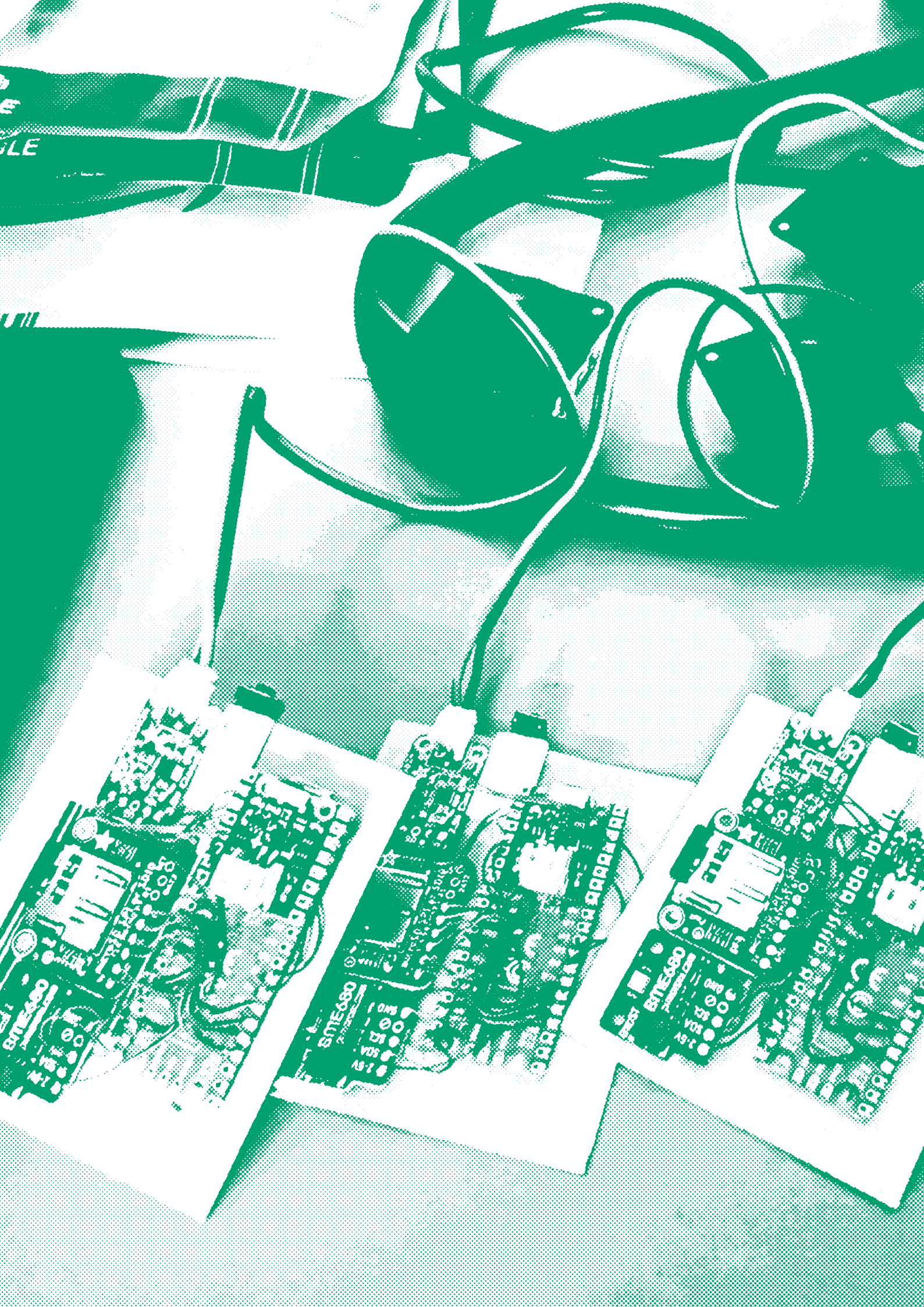
Alice Stevens introduces a narrative-based perspective in *Reframing British Weather Narratives,* leveraging ecolinguistics to foster pro-environmental behaviour By gathering these diverse perspectives, the SHIFT symposium aims to advance scholarly dialogue and collaboration.

This symposium is not merely an event but a contribution to the growing discourse on designing for sustainable futures.

Let us engage critically with these works as we collectively confront the global demands of health and sustainability through the beautiful and challenging language of design.

Dr Lewis Urquhart Dr Laura Maclean

University of Strathclyde
Department of Design, Manufacturing and Engineering Management



Reframing British Weather Narratives:

Using Technology and Ecolinguistics for Pro-environmental Behaviours and Well-Being

Alice Stevens
University of Plymouth and
Arts University Bournemouth,
United Kingdom

Climate change is altering British weather (UKHSA, 2023). Predictions indicate the UK will face more extreme weather, including higher summer temperatures and warmer wetter winters (Met Office, 2025). Globally, escalating climate hazards pose overlapping risks to ecosystems and human health (IPCC, 2023).

These changes are not only physical but also cultural, influencing societal narratives and behaviours around weather and sustainability.

Ecolinguistics, which examines how language shapes relationships between humans, other species, and the natural environment (IEA, 2025), provides a framework for understanding how dominant narratives can hinder ecological connections.

The British narrative that frames sunny weather as inherently 'good' (Stibbe, 2017; 2019) risks alienating people from diverse weather conditions, intensifying the adverse environmental and health impacts of climate change.

This practice-based research project challenges such narratives by integrating wearable technology and eco-poetry to create an embodied experience. The designed artefact, a pair of weather-predicting audio wellington boots, uses a barometric pressure sensor, Raspberry Pi Pico microcontroller, LiPo battery, and audio amplifier with a speaker. When weather conditions are detected, the boots trigger a poem aligned with the prediction, prompting participants to slow down, engage with their surroundings, and reflect on their relationship with British weather.

The project draws on Ron Wakkary's concept of more-than-human design (Wakkary, 2021), which emphasises the interconnectedness of humans, non-humans, and the environment, as informed by Donna Haraway's work on breaking down binaries (Haraway, 2016). This approach positions wearable technology as a bridge between human and ecological worlds, encouraging transformative relationships that could inspire pro-environmental behaviours and support well-being.

Enhancing nature connectedness significantly improves well-being (Capaldi et al., 2015) and encourages pro-environmental behaviours (Natural England, 2020). Regular engagement with natural environments creates a sense of belonging and supports healthier, more sustainable relationships with the environment.

By contextualising poetic content within changing weather conditions, the boots transform walking into an immersive, reflective experience, encouraging appreciation of nature and a broader range of habitable weather conditions.

Public trials at an outdoor arts festival revealed the potential of wearable technology to create meaningful, multi-sensory interactions with nature.

Qualitative data from 57 participants, gathered through questionnaires and guided conversations, showed the boots were perceived as joyful, thought-provoking, and engaging.

Participants reported a deeper appreciation for weather that they might previously have overlooked, discovering joy in a broader range of conditions.

By embedding technology into a tangible, familiar object, the project encourages moments of reflection and connection, helping participants recognise the beauty and value in what might otherwise be seen as 'ordinary' nature.

This research contributes to the symposium's theme, Technological and Environmental Influences on Health and Well-being, by showing how wearable technology can deepen appreciation for the natural world through embodied experiences.

Above: Participants at the outdoor arts festival wearing the weather-predicting audio wellington boots. Their interaction with the artefact provided qualitative data, revealing how low-tech wearables can help promote ecological awareness, mental wellbeing, and pro-environmental behaviours.

Main Image: The tech embedded in the weather-predicting audio wellington boots and housing the eco-poems. These components enable the experience, prompting reflection on weather and nature. The project highlights how wearables can support ecological awareness, mental wellbeing, and pro-environmental behaviours.

Encouraging an engagement with diverse weather conditions can support wellbeing and promote sustainable behaviours, offering pathways to resilience and sustainable living.

Left: The land that hosted the outdoor arts festival. The newly opened site is the UK's first community rewilding project and a designated Suitable Alternative Natural Green Space (SANG). Transformed into a functioning ecosystem, it provides the community with greater access to nature, promoting ecological awareness and well-being.

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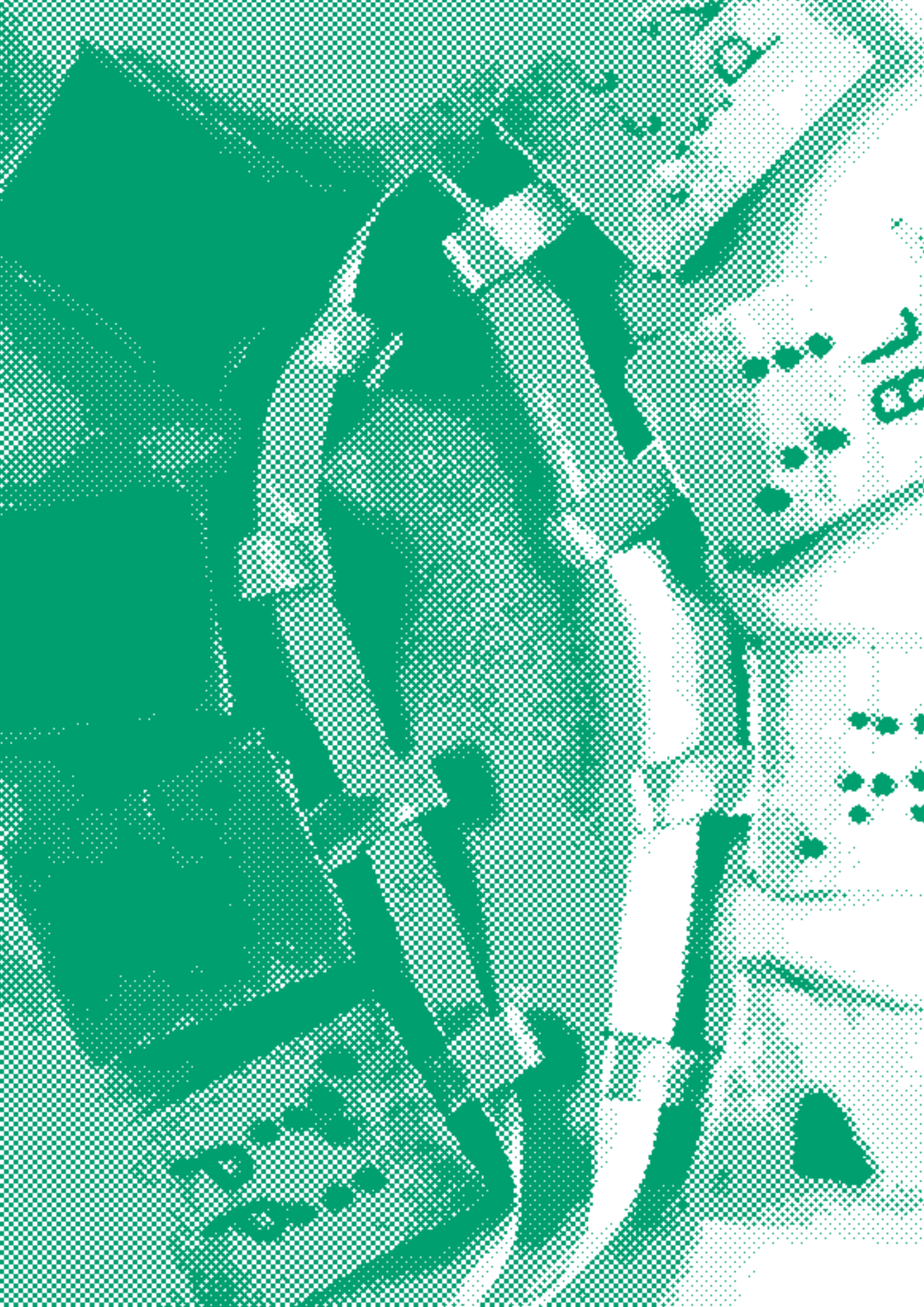


Memory Sticks:

Researching the Visual Pattern Recorder

Dr Christina Cie
Independent Scholar,
Auckland, New Zealand

Left: The Worry Beads. This tactile form uses the recording categories as prompts for the patient during a consultation. Those with low or no vision can identify different categories via shape and size of bead, which warm to the touch and make a reassuring sound as they are handled.

This research asked if visual pattern can usefully collect, and present personal health-related events for analysis with a physician for improved personal healthcare. Spotting visual patterns in symptoms is much faster than using words and may help time-pressured doctors more effectively diagnose and treat patients.

The pattern recorder was developed in association with a medical advisory team, following a biopsychosocial approach recognising the importance of mental health, physical health, and the social environment.

Health results already appear mapped on charts or graphs, but as separate items. Visual patterning can record and present multiple symptom categories concurrently, allowing interconnections between symptoms to be spotted and tracked through treatment.

Material recording forms can engage alternative neuro-pathways through senses other than sight, particularly sound and touch. They can be made from simple, cheap, easily available materials, be as easy to use as colouring in, with some models allowing users to include some written details if needed.

Visual patterns are cheap and easy to create and are 'technologically-agnostic', and recording health symptoms does not need special sensors built into expensive equipment like a Fitbit.

Patients can feel intimidated or embarrassed when talking to a doctor. Symptoms may be downplayed or overstated, and eye contact difficult due to cultural backgrounds.

A visual presentation may give a doctor a more balanced overview of symptom occurrence, and allows doctor and patient to, literally, look together at a record of the problem.

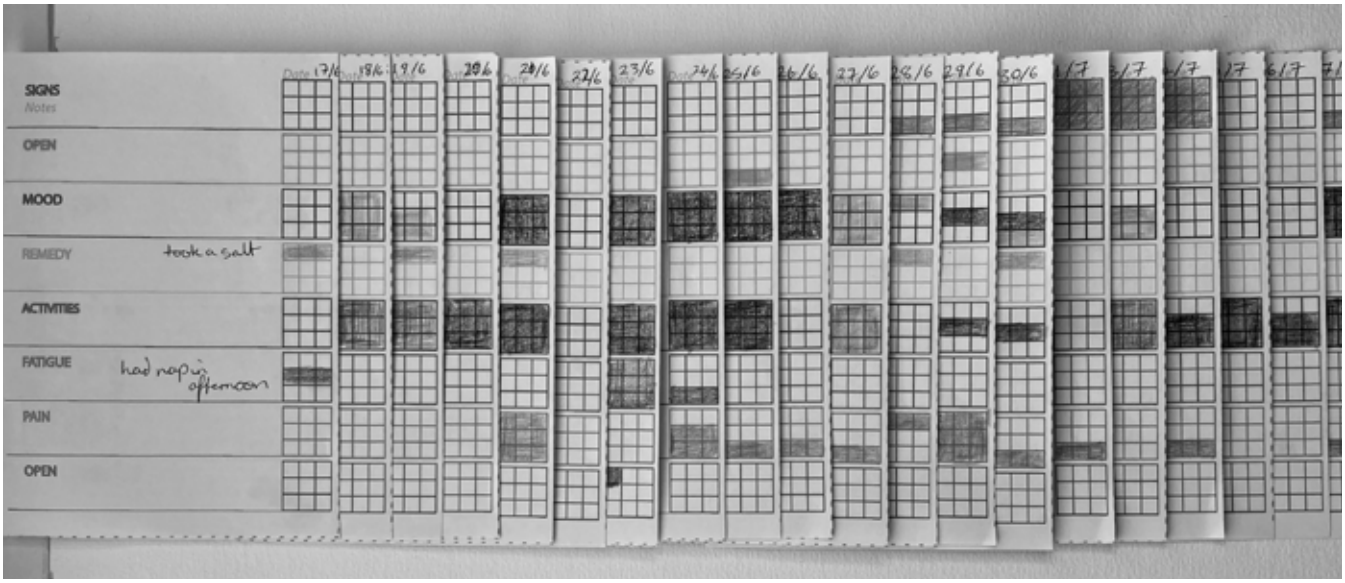
The pattern recorder uses categories of health symptoms matched with specific colours to record health symptoms and present them as a visual pattern.

Systematically ordered, categories can prompt the patient. Linking colours with categories can address language issues if no translator is available.

The pattern recorder includes open or non-categorised colours for recording symptoms specific to an individual. The individual patient chooses what these colours will record, allowing private events to be securely recorded.

Space for recording events that may seem to have nothing to do with health initially recognises the impact of external factors on physical and emotional health.

The details can be kept private, and the patient can choose



whether to disclose these to the doctor, but the doctor will still be made aware of additional stresses in life that may be affecting the patient's health. The 'Remedy' category reminds patients that there are often simple, non-pharmaceutical interventions.

This prompts patients to discuss any self-medication with their doctor and encourages patients to partner with doctors in their own health care.

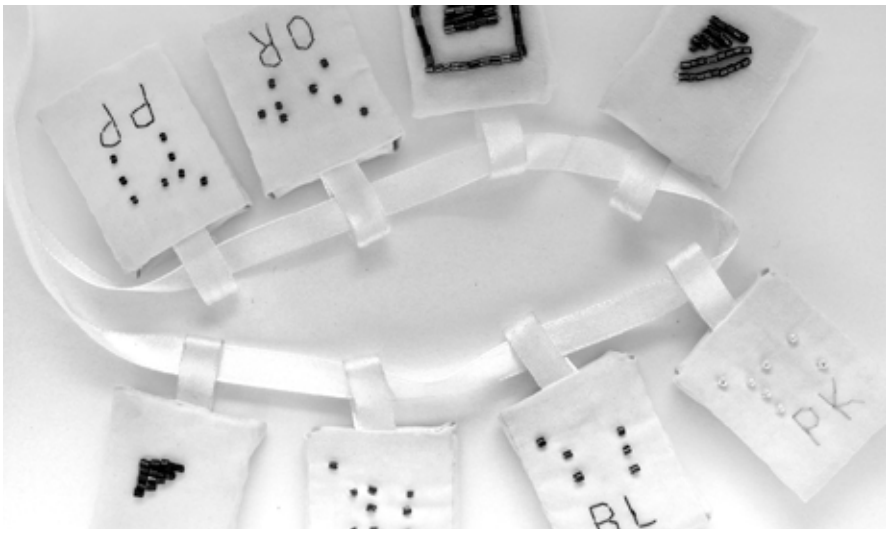
Patients bring problems to doctors, but the pattern recorder also records when the patient feels good.

The focus in a consultation can shift to promoting experiences of wellness rather than only concentrating on experiences of illness.

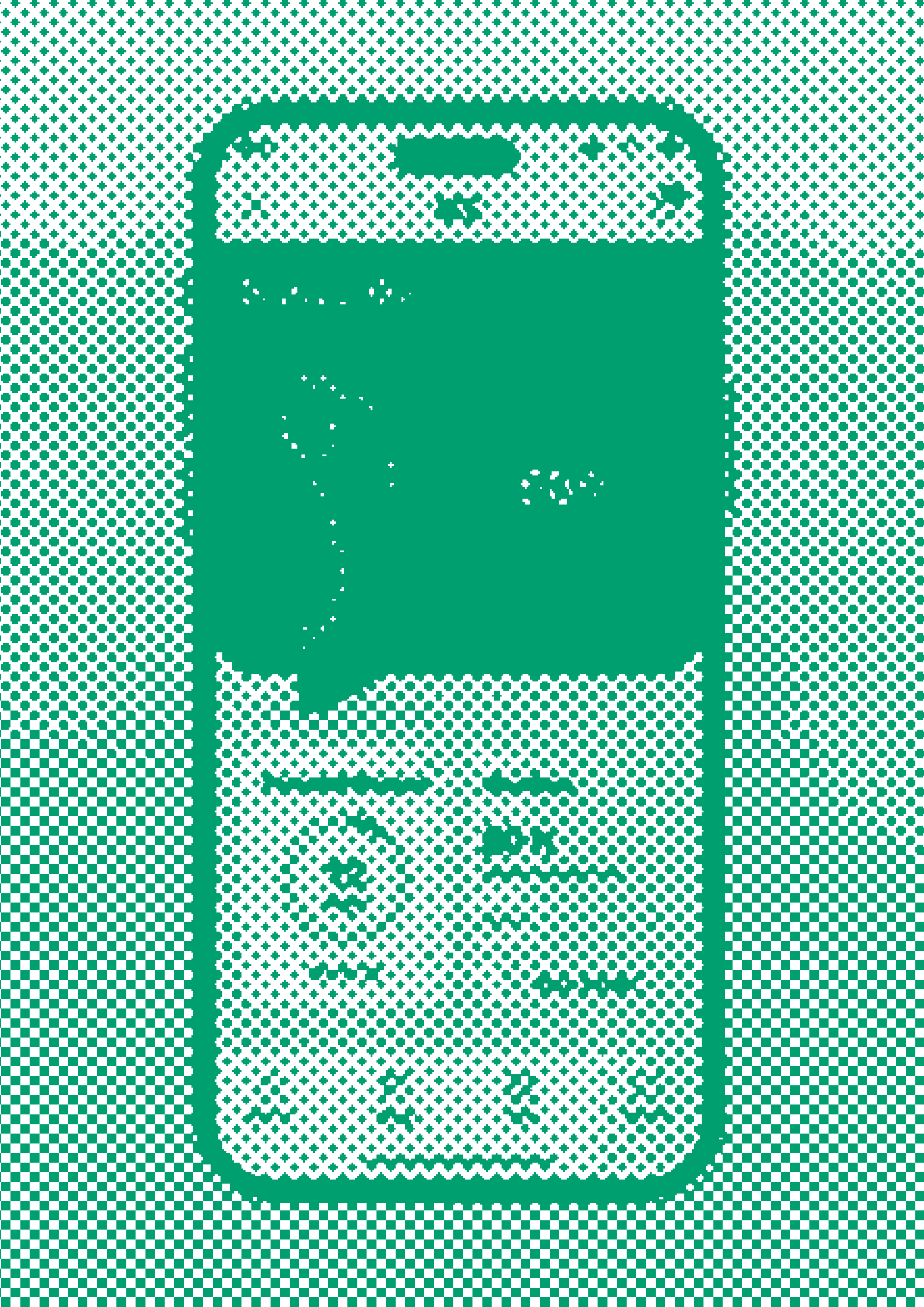
This is particularly important for those with long-term, chronic, and debilitating conditions, as well as for the doctor treating them, because doctors are human, too.

Disclaimer: *Please note, the pattern recorder is not designed for self-diagnosis. It is for information gathering, to be used in consultation with appropriate health professionals.*

Above: Concertina Bound. Innovative binding allows viewing of individual days in book mode, and concurrent viewing of weeks of recording in scroll mode to identify interconnected symptoms through patterns across the visual record.



Left: The Worry Beads, incorporating ColorADD system of colour as shape for those with impaired colour vision (colour blindness), with shortened braille colours for those with low or no vision. This tactile form uses the recording categories as prompts for the patient during a consultation.



An Ecology of Care:

Co-Designing Smart Compression Stockings for Individual and Environmental Well-Being

Giulia Teverini
University of Campania 'Luigi Vanvitelli', University of Siena, Siena, Italy

Anna Caponi
University of Siena, Siena, Italy

Sebastiano Mastrodonato
University of Siena, Siena, Italy

If we consider design as a practice of care (Pujadas, 2022), care can be understood as a wicked problem in design practice due to its multidimensional and undefined nature. This is particularly evident in the medical field, which remains dominated by the so-called medical gaze (Ristić et al., 2021).

This perspective objectifies the patient's body, treating it as separate from their personal identity.

Such a perception influences design interventions, resulting in medical products that remain cure-oriented rather than care-oriented.

While design for healthcare is gradually shifting towards a more anthropocentric approach, aiming to enhance health experiences through a person-centered perspective (Huber et al., 2015), this evolving and complex landscape requires a broader paradigm shift.

Rather than viewing the patient as a passive user, design must recognise them as an agent within a wider ecosystem.

Thus, design as a practice of care must extend beyond individual components to embrace an entanglement of multiple elements, putting an ecology of care (Vaughan, 2018) into practice. To illustrate the urgency of this shift, this contribution examines the design case of compression stockings, a widely used medical device prescribed for venous insufficiency.

Despite their importance, low patient compliance remains a significant issue due to the poor design of these wearables.

This lack of adherence has an often-overlooked but substantial environmental impact, as vast quantities of compression stockings are discarded due to various factors: unsuitable purchases that go unused, improper care or handling that leads to damage, and material degradation over time, requiring frequent replacements.

In response, a co-design project was initiated to transform compression stockings into a smart, self-managing tool that addresses both individual and environmental well-being.

The proposed design envisions a product-service ecosystem centered on three key touchpoints:

(1) personalised compression stockings integrated with wearable technology to generate user data.

(2) a mobile application to monitor the progressive loss of fabric compression capacity.

(3) a network of city-distributed lockers serving as collection points for unused or obsolete stockings.

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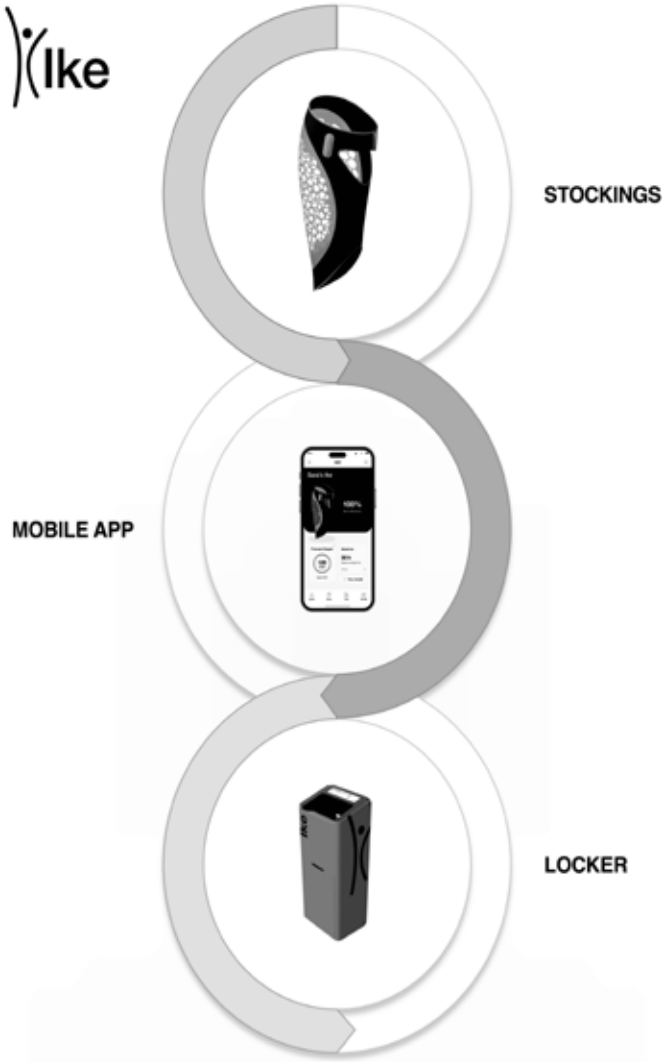
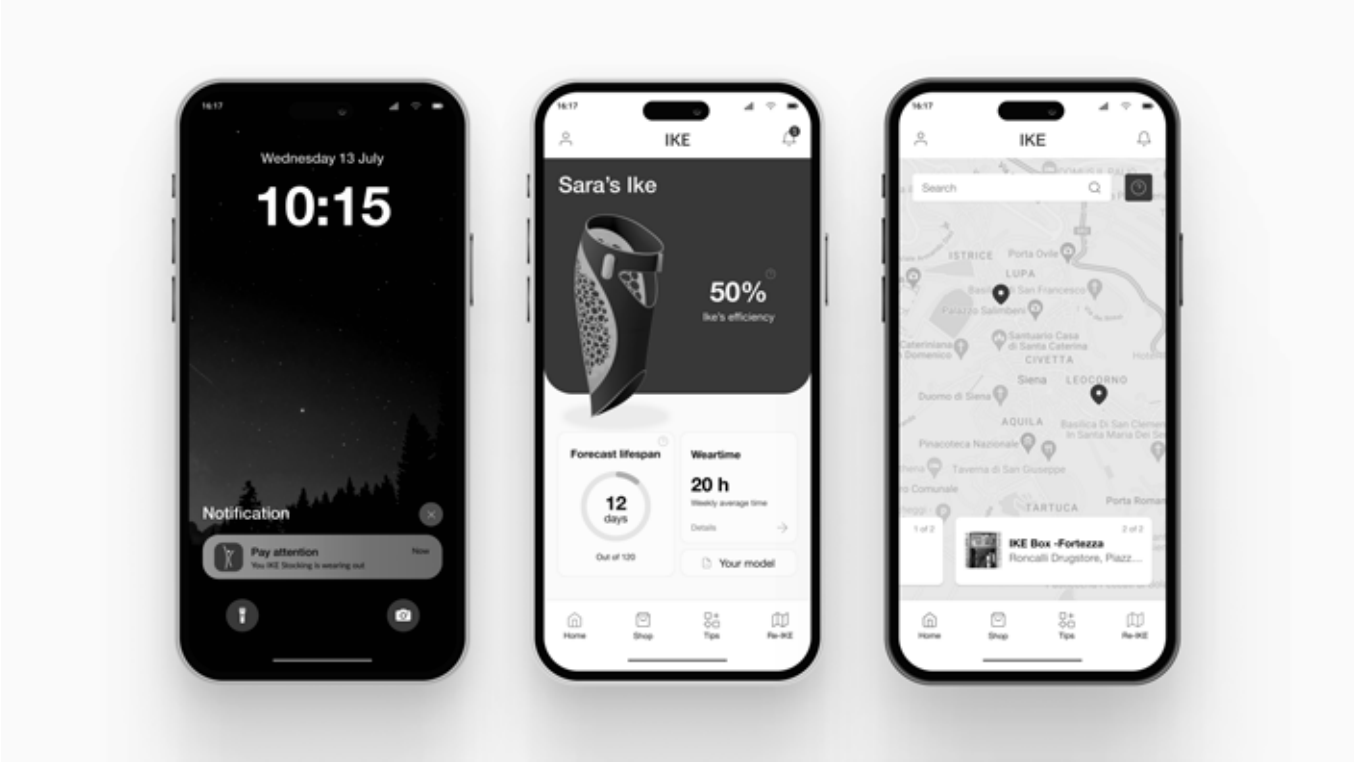
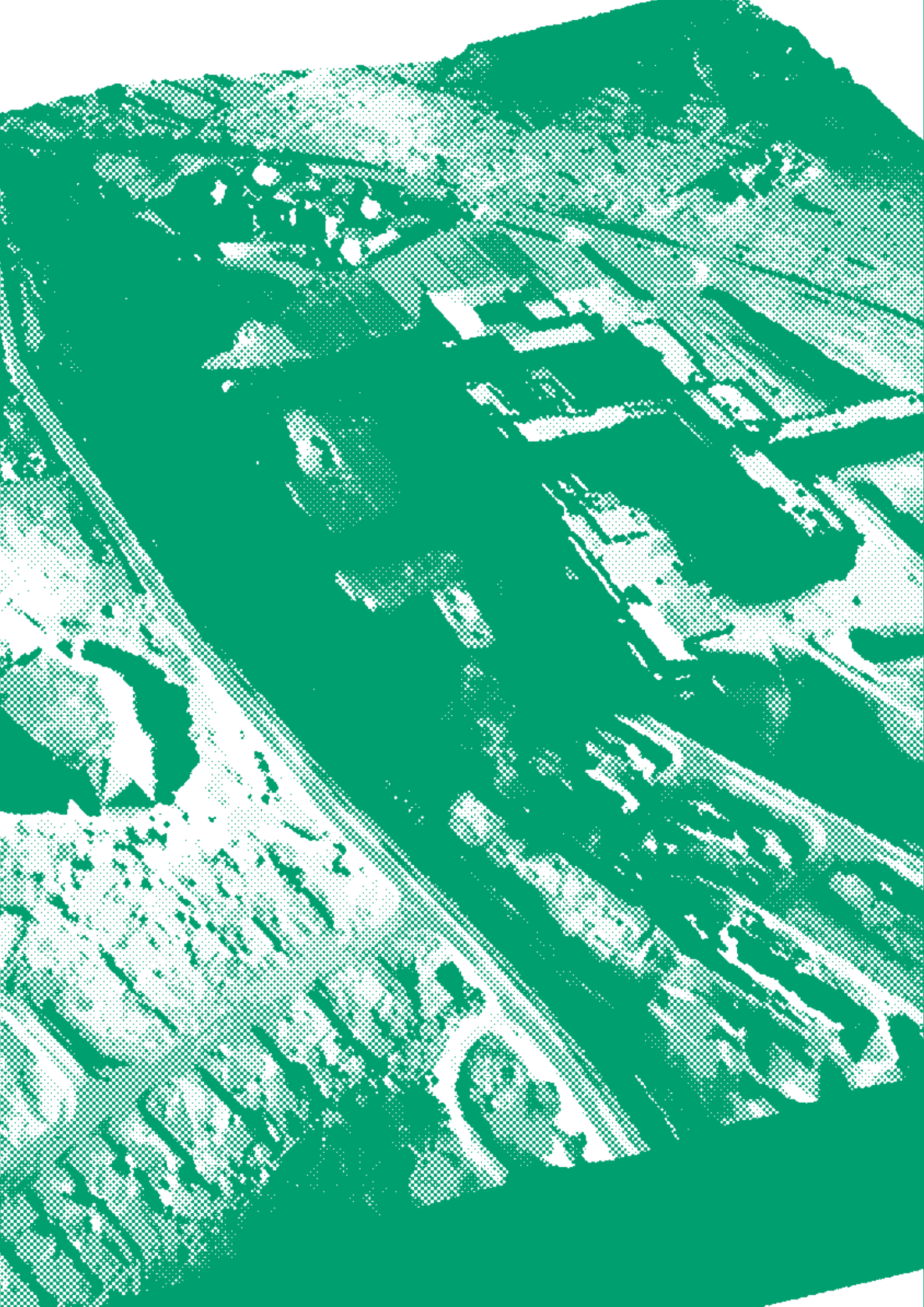
Right: Product-service ecosystem prototype– Visual representation of the interactions between various service touchpoints.

Left: A moment from the co-design session where both compressive stocking wearers and non-wearers collaborated to envision innovative solutions.



Below: Mobile app UI prototype– The dashboard provides wearers with a comprehensive overview of their compressive stockings, displaying key information on efficiency, estimated lifespan, and wear time.





Interactive Mixed-Reality Visualisation for Greenspace Management

Konstantinos Petrakis
University of Strathclyde,
Glasgow, United Kingdom

Dr Andrew Wodehouse
University of Strathclyde,
Glasgow, United Kingdom

Use of greenspaces may have a significant effect on the physical, mental, and social health of a community. Within healthcare, access to nature has been proven to reduce stress, promote patients' recovery and physical rehabilitation, enhance employees' well-being, and contribute to the wellness of the local residents (Wang & Tzortzi, 2023).

Right: 3D printed model of the Mountainhall area. Key structures are incorporated to ease spatial perception. The aim is to keep users' focus on the landscape, while relieving the model from unnecessary elements, in order to highlight the topographical profile of the area in question.

Below: Example of the Mixed-Reality Visualisation toolkit in use. The 3D printed model functions as a reference point for stakeholder engagement and discussion. The user is investigating a redevelopment site in a similar context, by interacting with a range of overlayed maps and contextual information through the device interface.

All the above raise the need for the efficient management, restoration, and preservation of such spaces in healthcare facilities.

This work consists of a prototype tool that can be employed in nature restoration projects, by providing a powerful, interactive platform for visualisation and context-setting purposes, and consequently by fostering stakeholder engagement.

Through the blending of tangible models with Augmented Reality (AR) applications, the users are enabled to effortlessly envision different scenarios in an intuitive and interactive manner.

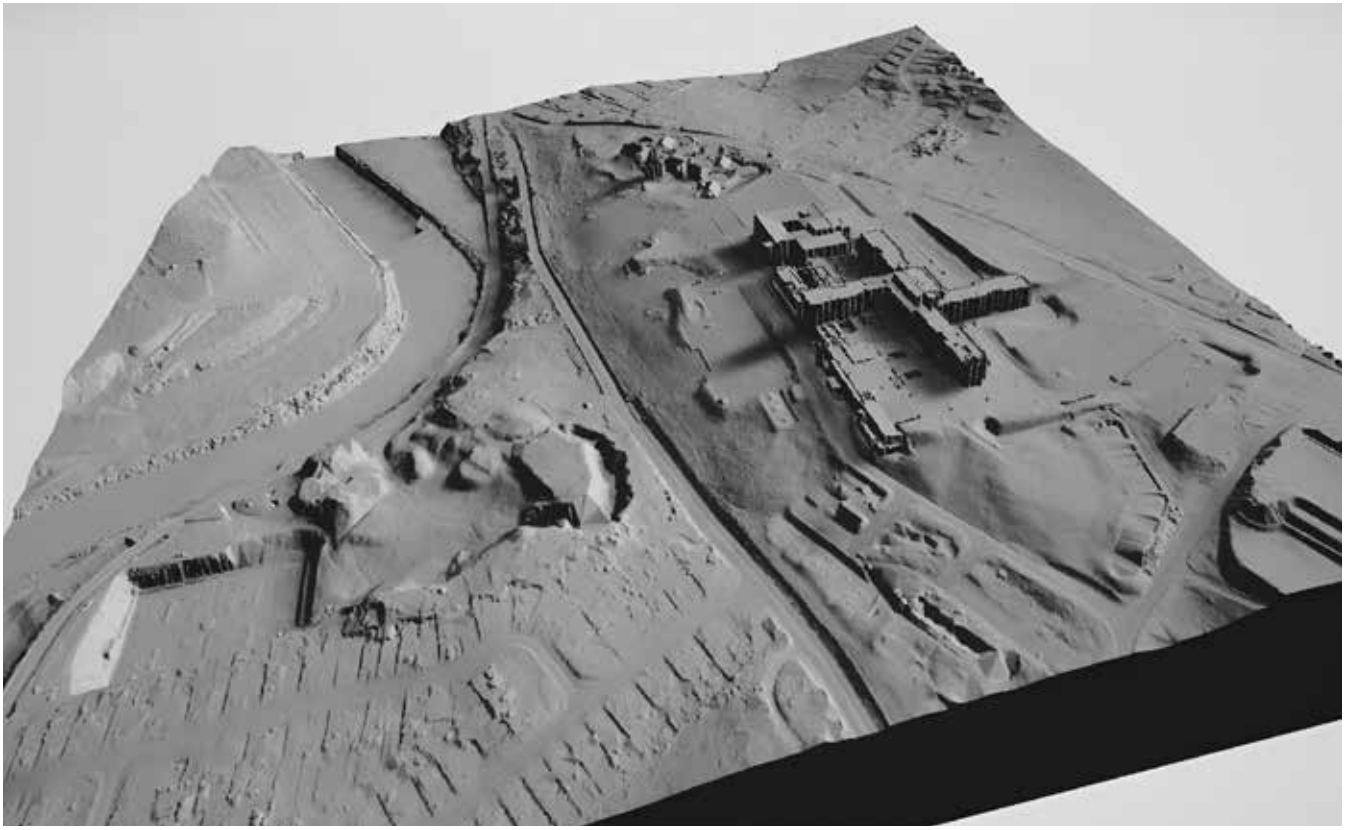
Such mixed-reality approaches can enhance users' cognitive understanding and emotional connection through multisensory experiences (Harley, 2023), making design concepts more relatable and inclusive, and therefore ensuring collective decision-making—even for non-technical stakeholders (Krug, Patel, & Lin, 2024).

The visualisation setup consists of a 3D printed terrain model of the facility and an AR app which overlays information layers, to be used for inspection and exploration of the site.

These range from multiple types of maps and animations which alter its appearance, as well as data quads acquired through research which may highlight several environmental, societal and health-related characteristics.

The tool's ability to seamlessly integrate the highly accurate site's landscape with specific types of information provides a new dimension to the users' spatial comprehension of the area and supports them in reimagining how potential redevelopments can be integrated into the environment.

That being said, another key function is the spawning of interactable 3D design concepts of the redesigned spaces, which can be demonstrated in multiple locations or configurations, and manipulated via touch gestures and UI buttons; thus, offering stakeholders a sense of control and creativity and the chance to offer more considerate feedback.



The purpose of this visualisation tool is to be employed as a central piece during the facilitation of workshops, exhibitions, and co-design sessions among researchers and project stakeholders including patients, staff, local residents, and councils.

The deployment of physical-digital interactions can provide them with a richer understanding of the site's environmental profile, sparking insightful discussions and continuous community engagement.

Finally, to adhere to the requirements of nature connectedness in healthcare facilities and its impact on the community's well-being, where the existing infrastructure is equally important as the site's physical landscape, a bespoke design approach has been adopted which merges different dataset types to provide the users the best possible setting and space to intervene.

Right: Greenspace zone demonstrated through AR. The app automatically tracks the 3D printed model and shows the borders of the Mountainhall Treatment Centre site, along with the precise areas for potential redevelopment.

References:

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Exploring Sustainable Health Priorities with Young People Through Making and Exhibiting Speculative Health Innovations for the Future

Martin Skelly
University of Dundee, Dundee, United Kingdom

Dr Amy Rogers
University of Dundee, Dundee, United Kingdom

Dr Andrew Cook
University of Dundee, Dundee, United Kingdom

Dr Chris Lim
University of Dundee, Dundee, United Kingdom

Main Image: Prototype artefact, packaging, description and price tag.

Morbo Deprehensio is a wearable health monitor, designed by Kirsten and Kourtney, both age 12. It 'predicts' future health outcomes and tells you how to avoid them before they even happen. It was designed to be free to access in the year 2036 and provided by the NHS.

It was designed during a workshop exploring the future of healthcare with young people aged 10-16 in Dundee.

The workshops combined two approaches that we believe could be central to developing sustainable healthcare systems informed by their users; Human centered design (HCD) and Speculative Design (SD).

Healthcare systems globally are stretched by rising demands, with expenditure on healthcare increasing in real terms by 24% from 2013 to 2023 in Scotland alone (Public Health Scotland, 2024).

One societal challenge for sustainable healthcare is combining scientific and technical healthcare advances with shared decision-making between the patient and the provider.

HCD is rooted in the 'questions, insights and activities' central to the lives of those for whom a product, system or service is intended (Giacomin, 2014).

HCD can offer the opportunity to discover and bring together diverse perspectives to enhance the debate about policies and priorities within healthcare (Melles, Albayrak, & Goossens, 2021). Speculative Design is an approach that critically considers alternate futures for technology and society (Dunne & Raby, 2013).

Through ideation and making, SD explores scenarios and articulates visions and future needs, that are imaginative but not disconnected from current realities.

In a series of workshops, researchers explored speculative co-design methods to create future health innovations with young people through the design, creation and exhibition of co-designed artefacts.

The workshops were facilitated using an adapted version of the 'The Futures Bazaar: A Public Imagination Toolkit' (Cuttica & Candy, 2022) and the 'Thing from the Future' card game (Candy, 2018).

The young people worked through a series of healthcare prompts, sketching and describing a future product for each. They then chose a preferred concept to prototype using basic craft materials.

Finally, they wrote a 'for sale' label and a description to accompany the prototype. A collection of the young people's artefacts from the future were exhibited in a public library for two weeks in 2024.

This work presents a design process that engages young people in future health scenarios through imagining health 'product' innovations.

But beyond this, the discussions that took place during the design process around the types of future the young people anticipated living in provided insights that could enrich discussions about priorities in sustainable health.

Future work would involve further exploring the use of speculative co-design workshops to stimulate conversations about health priorities with people who may be reluctant – or unable – to engage in more formal priority-setting activities.

Right: Futures Collective Health Futures Exhibition (2024).

References:

Candy, S. (2018). The Thing From the Future. In R. Miller (Ed.), Transforming the Future: Anticipation in the 21st Century (pp. 233-246). Routledge. https://doi.org/10.4324/9781351048002.

Cuttica, F., & Candy, S. (2022). The Futures Bazaar: A Public Imagination Toolkit. BBC UX&D and Situation Lab. https://www.bbc.co.uk/gel/features/futures-bazaar-toolkit.

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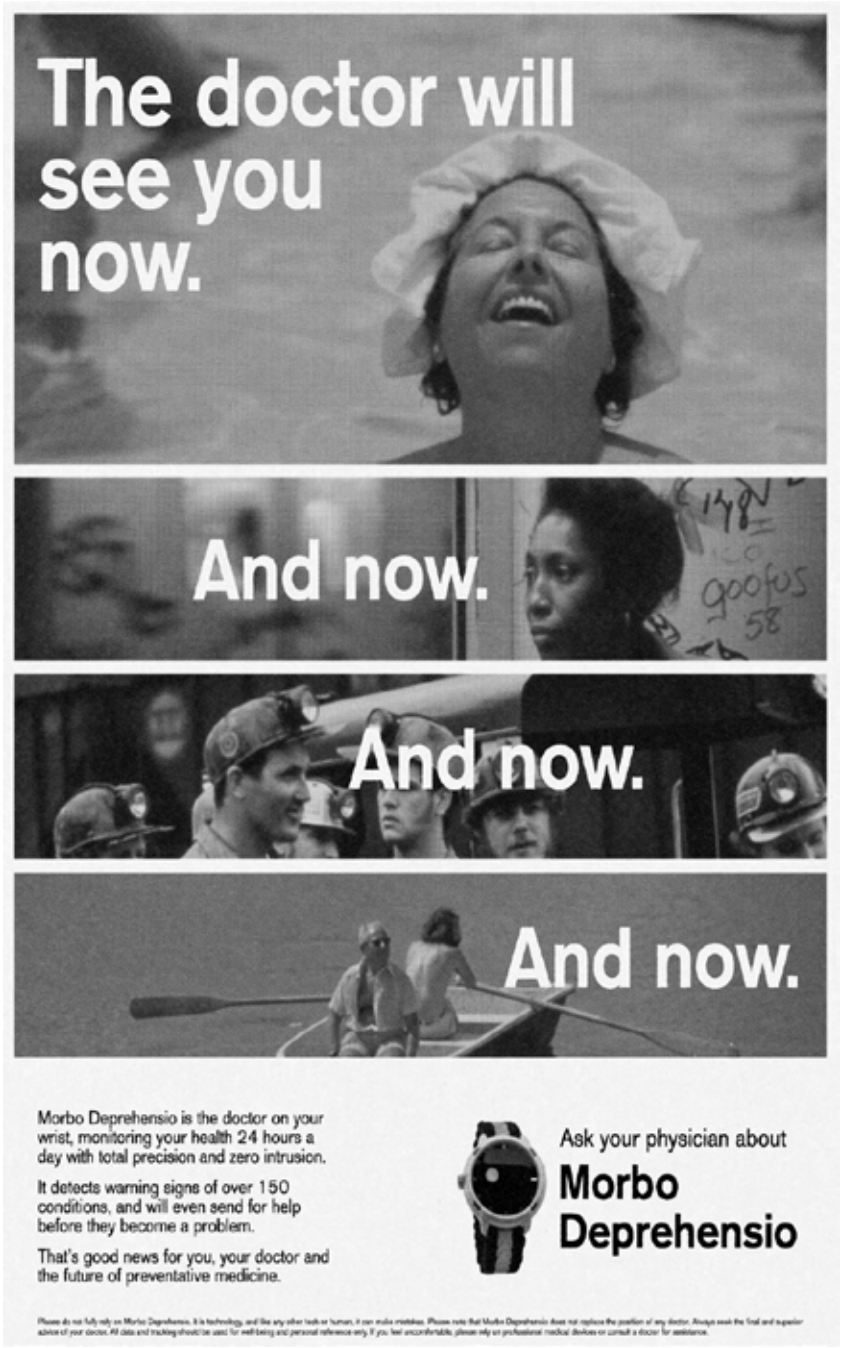
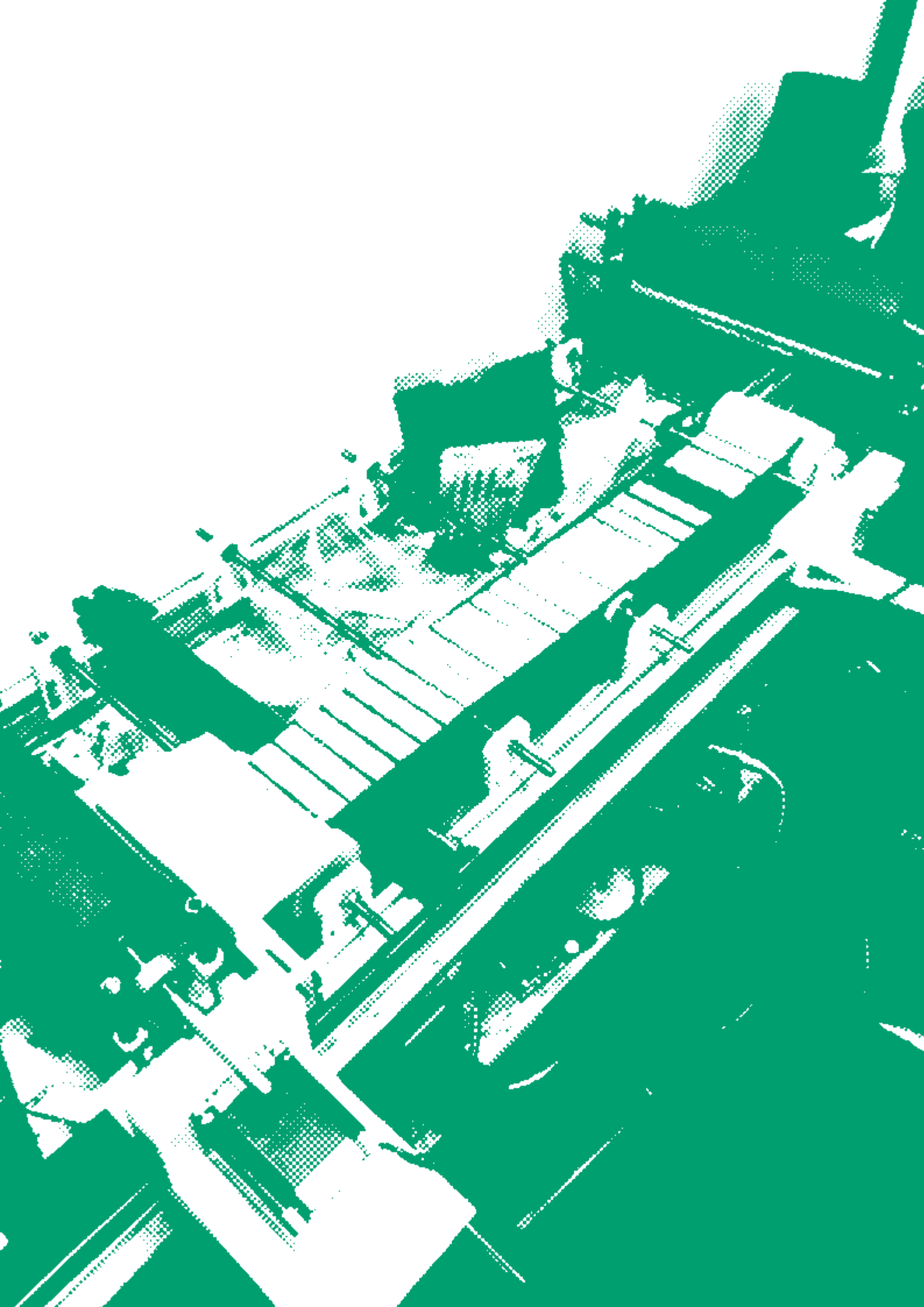


Above: Print Ad for Morbo Deprehensio, designed by Futures Collective Dundee in response to Kirsten and Kourtney's prototype and description (2025).



Homegrown Sustainable Textiles Manufacturing for the Healthcare Industry

Rosemary Bristow
Heriot-Watt University, Edinburgh, United Kingdom

Nicholas Evans
Fantasy Fibre Mill, East Linton, United Kingdom

Single-use and petrochemical-derived textiles are a significant and preventable part of the NHS's carbon footprint. An NHS guide on reusable sterile and isolation gowns found that replacing single-use plastic gowns with a reusable alternative saved 69% of the carbon footprint. (Blazejewski & Rothman, 2025).

Similar studies on gowns in America (Vozzola, Overcash, & Griffing, 2020) and scrubs in France (Burguburu et al., 2022) also found reusable textiles had 66% and 31%-62% less climate impact, respectively.

This research project proposes the use of locally farmed and produced natural fibres (flax) to make strong linen fabrics that can be safely washed, reused, and eventually composted as an alternative to polluting petrochemical textiles.

However, there are no flax processing or spinning machines available in the UK, except for one refurbished scutching turbine in Northern Ireland (Mallon Linen, 2025).

The latter does not have the capacity to take on more flax processing.

This prototype spinning machine is a key part of the missing infrastructure needed.

Currently available flax processing machinery is expensive (6-8 million Euros quote from DePoortere, 2025) and high capacity, handling 8000ha of flax annually (Cooperative de Teillage du Neubourg, 2025).

Smaller scale and cheaper machinery could facilitate a pilot scheme to be set up and sample garments constructed this year without raising millions of pounds in investment.

Furthermore, the amount of land needed to grow scrubs for all of NHS Scotland is projected to be only 636ha based on my preliminary research.

This prototype machine is designed to be open-source, affordable (under £1,000), modular, and easy to build and maintain.

It uses mostly off-the-shelf parts and 3D printed components. We aim to make fibre processing accessible for farmers, textile workers, and fashion designers.

The machine has been designed and made by an open-source project undertaken by myself and my business partner, West Virginia University, and Berlin Textiles Co-op.
It is part of a suite of open-source machines that can transform raw flax stalks into linen yarn.

The weaving sample has been made by collaborator Bridgitte Kaltenbacher to illustrate the progression of the machine in making more consistent and stronger yarn over time.

Main Image: Flax drafting and spinning machine prototype.

References:

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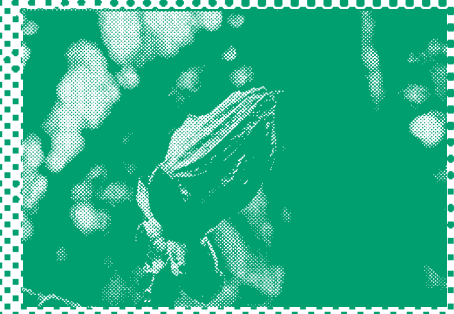
Left and Above: A sample weaving showing the progression of yarn quality development through the evolution of the spinning machine's design. Bottom to Top: Yarn with slubs left in, Improved yarn without slubs, Control sample of commercial yarn.



Sculpting in Time and Environment:

How Clay Sculpting Combined with Nature Observation can be used as an Intervention to Support Health and Well-being in Daily Life

Sanmin Tan

Edinburgh College of Art, Edinburgh, United Kingdom

My research interests focus on how hand-building clay sculpting combined with nature observation can be used as an intervention to support individuals' health and well-being in everyday life.

Main Image: Embodiment the first piece of work of my clay sculpting sequence related to nature observation on Blackford Hill in Edinburgh 2024.

Daily life provides a space where self-care of health and well-being towards prevention can happen, and individuals can access such a space by balancing the internal and external worlds with awareness.

My artistic explorations deepen my understanding of how the inner world and external world (environments) can be touched and connected by clay and hands, which builds a foundation for me to create the transformative space between creative art practices and everyday life.

In this symposium, I will introduce an approach to taking nature's rhythm into our breathing and sculpting. I will showcase my visual sculpture diary alongside participants' clay practices related to their life experiences and nature observation to inquire about the entanglement of clay material, the local natural environment, and awareness of well-being.

In my research, nature observation is not only about noticing the life of plants but also about understanding plants as one kind of being that conveys or reveals the laws of Nature, the same laws that work on human beings. It includes using our basic human senses to learn and appreciate our local environment while observing patterns in the lives of plants and animals.

It also helps us distinguish different stages of their growth and gain first-hand experience of the outcome of the creative and formative forces working within nature.

In this research project, the combination of hand-building clay sculpting and nature observation is based on an individual's everyday engagement with their local environment through their own senses.

This allows individuals to experience the force (of a growing bud or clay sculpting, etc.) from within. What you observe is also happening inside you.

Anna Lowenhaupt Tsing (2015) employed mushrooms to investigate 'assemblages' related to mushrooms, forests, humans, and societies to answer 'What manages to live in the ruins we have made?' in her anthropological and environmental study.

I will show my investigation of connecting sculptural clay, nature, lived experience, and local communities in a touchable ecosystem to support individuals in building a new way to face the impact of human activity on the climate and environment in the Anthropocene and take a practical step in everyday life.

Disclaimer: *'No firing' is a sustainable way to work with clay and have a daily ceramic practice.*

I have employed 'no firing' as a method with my clay sculpting practices since 2022. I take un-fired clay as a medium to communicate with our inner worlds and to connect with nature.

References:

Tsing, A. L. (2015). The mushroom at the end of the world: On the possibility of life in capitalist ruins. Princeton University Press.

Left: 'Acceptance'the third piece of work of my clay sculpting sequence related to nature observation on Blackford Hill in Edinburgh 2024.

Right: 'Balance' the second piece of work of my clay sculpting sequence related to nature observation on Blackford Hill in Edinburgh 2024.

Understanding Place and Environmental Well-being in a Time of Climate Breakdown- Sustainability of the Purpose and Use of NHS Greenspace Sustainability Programmes

Dr Sarah Bowyer
NHS Highland, Inverness, United Kingdom

Kate Thomson
NHS Highland, Inverness, United Kingdom

Erin McElroy
NHS Highland, Inverness, United Kingdom

The New Craig's orchard was planted in 2016 as part of the NHS Greenspace Demonstration Project, delivered through the Green Exercise Partnership, a collaboration between NatureScot, Scottish Forestry, Public Health Scotland, and NHS National Services Scotland.

Greenspace areas were established to promote therapeutic activities that benefit NHS staff, patients, visitors, and the wider community.

In addition to its potential health benefits, this greenspace contributes to climate resilience, biodiversity enhancement, and NHS Scotland's net-zero commitments. The orchard space is named 'Cala'- a Gaelic word meaning resting place, harbour, or place of safety.

This study aims to explore how participatory and co-productive approaches can enhance engagement with NHS greenspace, understand the therapeutic benefits for patients and staff, and demonstrate how such spaces can be integrated into healthcare environments for holistic well-being.

The project involved the planting and ongoing management of the orchard, as well as initiatives to increase awareness and engagement.

Anecdotal feedback suggested that 'Cala' was underutilised, with much of the fruit falling as windfall rather than being harvested and consumed.

To address this, an interdisciplinary initiative was launched in 2021, supported by hospital Senior Management and involving Public Health, Nutrition and Dietetics, Occupational Therapy and Support Services staff.

Co-productive approaches included working with staff and patients to create artwork and signage to enhance awareness and the therapeutic experience of the space. Engagement with the orchard increased significantly, particularly during the 2024 Climate Week celebrations. Over 50kg of apples were harvested by staff and patients.

Some apples were used in occupational therapy-led activities, others were incorporated into hospital café menus by chefs, and the remainder was taken home by staff. This initiative provided physical activity, nourishment,

Below: Staff and patients were invited to join in the harvest – physical activity to obtain an edible nourishing product from nature. Wildflower areas beneath the trees were strimmed and left to nourish the ground and embed seeds for next year.

and a deeper connection to the natural environment. Wildflower areas were also managed sustainably, ensuring biodiversity for the following year.

Further engagement was encouraged through the co-design of signage by patients, fostering a sense of ownership and promoting nature-based therapeutic interventions. This tangible artefact reinforced the connection between people and the environment.

This initiative provides a case study for integrating greenspace within NHS settings to promote environmental sustainability, therapeutic engagement, and staff well-being.

Plans for further development include adding locally produced recycled plastic furniture to encourage more use and planting flax to enhance biodiversity. The project aligns with mixed-methods research evaluating the Green Health Programme at the hospital, which aims to:

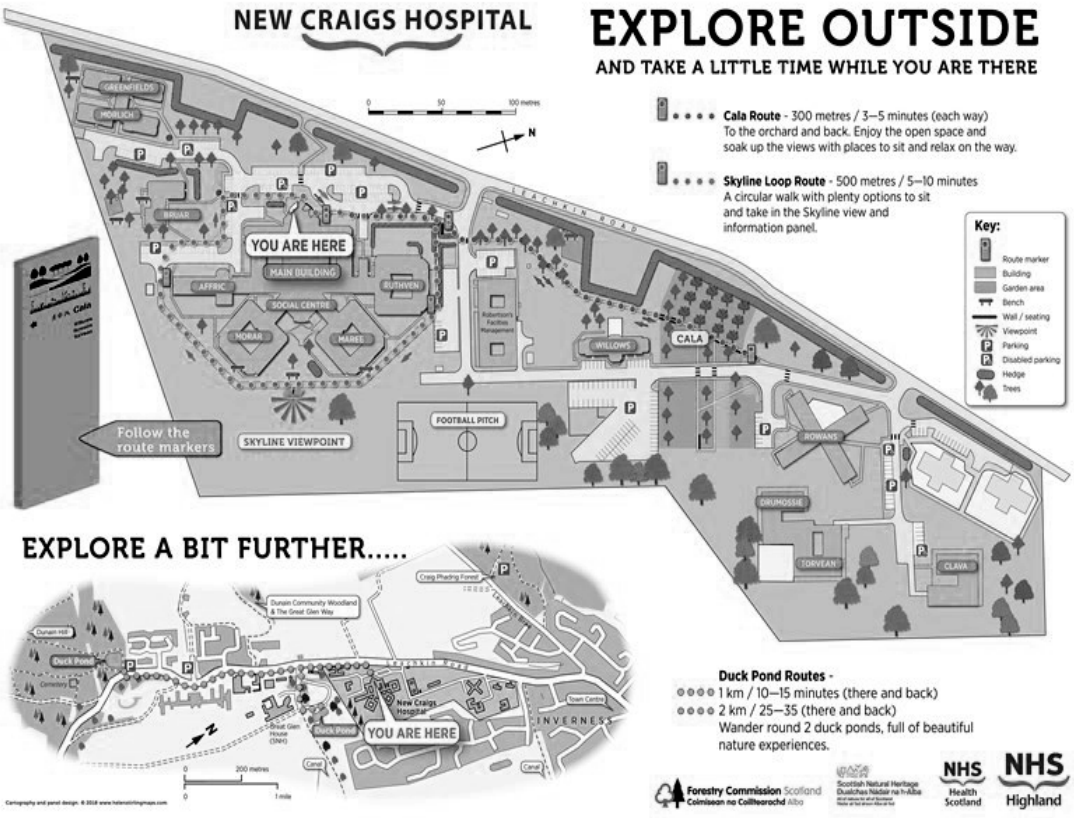
- Assess the effectiveness of nature-based therapeutic interventions for patients.
- Explore the practicalities of implementing green health initiatives within a healthcare setting.
- Sustaining greenspaces within the NHS requires ongoing investment in staff capacity and engagement.

We propose that embedding nature-based activities within patient care plans and integrating NHS Highland's Environment and Sustainability Strategy into staff roles, could cultivate a sense of place and a more environmentally aware NHS culture.
This, in turn, could enhance both workplace well-being and the ecological health of NHS greenspaces.

References:

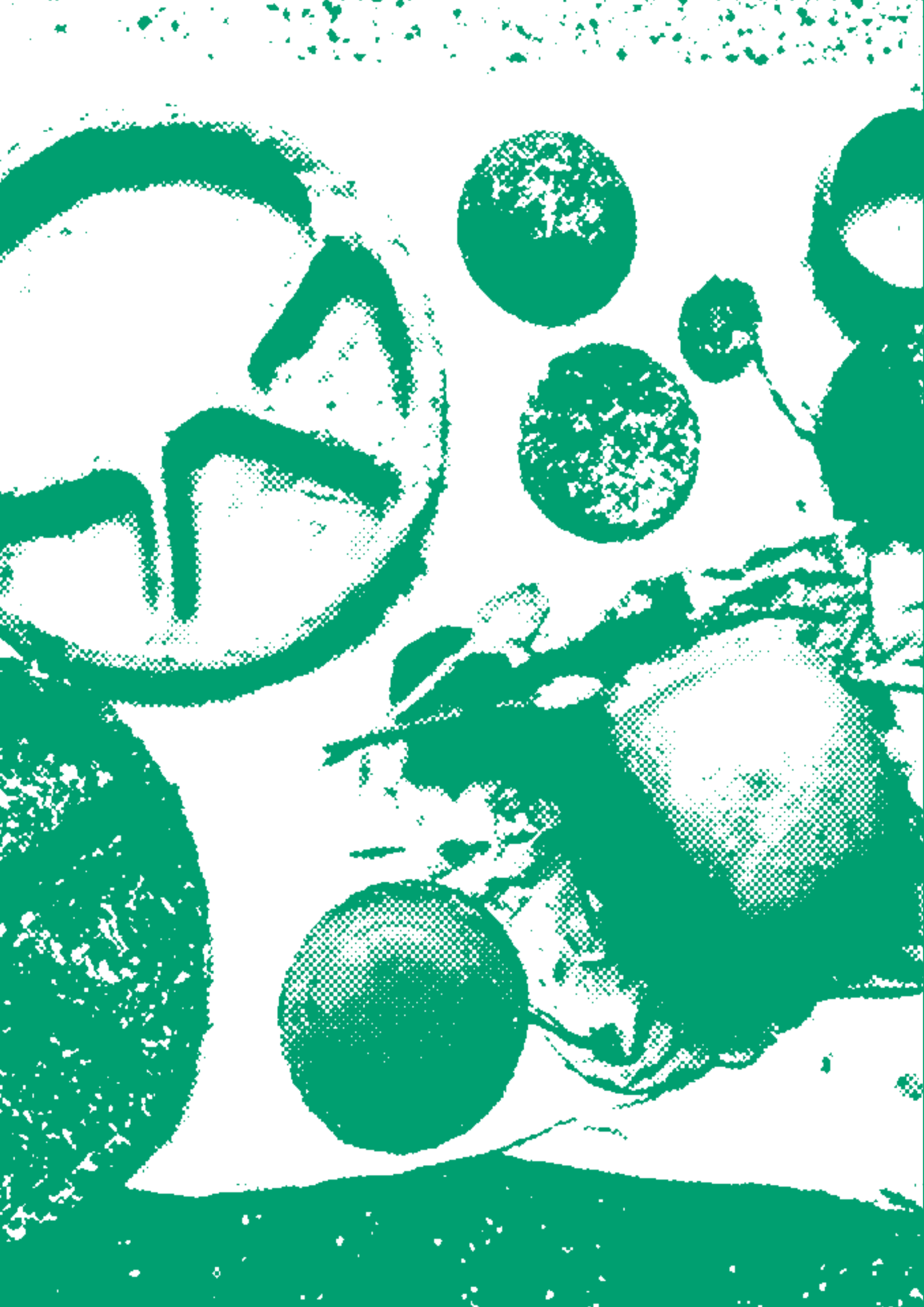
NHS Scotland Climate Emergency and Sustainability Strategy 2022-2026 https://www.gov.scot/publications/nhs-scotland-climate-emergency-sustainability-strategy-2022-2026/.

Gregory, D.et al (2009) The dictionary of human geography 5th Edition. Chichester: Wiley Blackwell.



Right: The project involved mapping the greenspace within the hospital estate, and the creation of signage to provide direction, yet feedback indicated that many staff were still unaware of the orchard's location.

Cover Image: To encourage engagement with the Cala space, a sign was created with artwork created by patients, providing an opportunity for nature based therapy with a tangible artefact (the sign) as an output.



Turning Wheat Straw into Sustainable Cutlery:

A Dual Solution for Pollution and Plastic Waste

Shivam Vats
IIT Bombay, Mumbai, India

The Delhi-NCR region, home to nearly 30 million people, grapples with two critical environmental challenges every October. First, the annual grain production season in the neighbouring states of Haryana and Punjab generates an enormous amount of wheat straw, much of which is burned as waste.

This practice significantly contributes to the region's hazardous air quality index, which deteriorates to alarming levels during this period.

Second, the region's massive population drives an astronomical consumption of single-use plastic cutlery, the majority of which ends up in landfills, further exacerbating environmental degradation. Addressing these twin crises, we envisioned an innovative solution that reuses wheat straw to produce biodegradable cutlery, thereby tackling pollution on both fronts.

Wheat straw, a byproduct of grain production, is abundant and often discarded. By repurposing it into a sustainable alternative to plastic cutlery, we aim to reduce waste and combat air pollution while mitigating the demand for single-use plastics.

Our process began by sourcing surplus wheat straw from local dairy farms in Haryana and Punjab.

The material was thoroughly cleaned to remove impurities and ground into fine particles.

We then developed a natural adhesive using grain starch, a readily available and eco-friendly binder.

The wheat straw and natural glue were mixed into a uniform paste, which was molded into cutlery shapes and sundried to solidify.

This simple, energy-efficient process yielded a durable and functional product—a proof of concept that demonstrates the potential of wheat straw-based cutlery as a viable alternative.

The proposed solution effectively addresses the dual environmental challenges faced by Delhi-NCR.

By reducing the burning of wheat straw, we can alleviate the region's air pollution, and by replacing single-use plastics with biodegradable alternatives, we can minimise landfill waste.

Furthermore, the project has the potential to create a circular economy by engaging local farmers and entrepreneurs in producing sustainable products, generating livelihood opportunities in rural areas.

This initiative exemplifies how innovative design can bridge agricultural and urban challenges, fostering a cleaner and greener future.

While our wheat straw-based cutlery is still in its prototype phase, the results are promising, and with further refinement, this approach could lead to widespread adoption and significant environmental benefits.

Above: The drying and setting process after applying glue made from grain starch.

Above: Final Outcome (Proof of Concept).

Below: Wheat Straw Preparation Process.

Kinesis Grove:

Transforming Abstract Emotions into Tangible Interactions through an Immersive Playground that Fosters Multisensory Experiences

Yukta Pathak
Royal College of Art, London, Imperial College London, United Kingdom

Changqing Xu
Royal College of Art, London, Imperial College London, United Kingdom

Bana Quronfuleh
Royal College of Art, London, Imperial College London, United Kingdom

Language, a cornerstone of human connection, has evolved from primitive gestures to the complex spoken and written systems of today. Yet, for over 5% of the global population—400 million adults and 34 million children—living with disabling hearing loss (World Health Organisation), the ability to communicate and regulate emotions remains a significant challenge.

Research highlights that individuals with a rich emotional vocabulary are 62% more likely to report lower anxiety and depression levels (Journal of Clinical Psychology, 2014, Volume 70, Issue 10).

Conversely, children facing early language delays often experience social isolation and behavioral challenges (Journal of Child Psychology and Psychiatry, 2015, Volume 56, Issue 9). This communication barrier is particularly profound for deaf and mute children, impacting their ability to form peer relationships and navigate emotional experiences. In response to this gap, we began exploring the role of design and how it could potentially bridge the divide between gestures and emotions.

Through multiple design iterations, we recognised that playgrounds are natural spaces that encourage emotional expression and social interaction. They are environments where children are often most expressive, fostering a wide range of emotions, making them ideal for our intervention. This insight led us to develop Kinesis Grove: an interactive, scaled-down tabletop playground aimed at fostering engagement amongst children who may find it frustrating to express themselves.

Leveraging Plutchik's Wheel of Emotions as a foundation, we identified four core emotions—Joy, Hope, Brave, and Share—each represented by distinct hand gestures.

These gestures, detected by sensors and cameras, trigger mechanical responses in real time, transforming emotional input into tangible, playful outputs. Each emotion is brought to life through a unique interactive feature:

- **Joy:** Activates a merry-go-round, fostering unity and warmth through continuous, flowing motion.
- **Hope:** Animates stars on the 'Tree of Hope,' rising and falling via an actuator to symbolise aspiration and dreams.
- **Brave:** Launches a zipline, providing a thrilling, empowering experience that embodies courage.
- **Share:** Sets a see-saw into rhythmic motion, capturing the essence of balance and joy in shared play.

By embedding emotional expression within familiar playground elements, the design creates a dynamic environment where emotions are both understood and physically experienced.

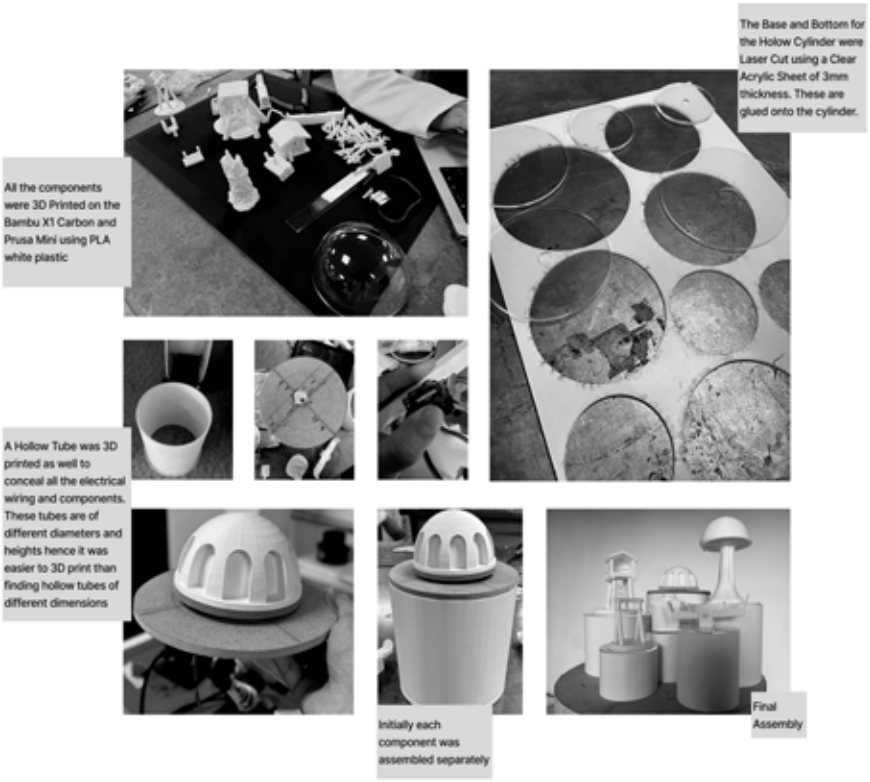
The incorporation of a machine learning algorithm for gesture recognition ensures an intuitive and responsive interaction, empowering children to connect with their emotions and peers in meaningful ways.

This project reimagines inclusive play spaces, offering a pathway for emotional expression that transcends traditional language barriers.

From this project, we realised the profound importance of communication in human lives and how it can define new narratives of well-being, particularly in the increasingly digital world we inhabit. Initial reactions from young children were delightful; they enjoyed the simple yet meaningful interactions.

Furthermore, we sought feedback from the Imperial Sign Language Society President, who loved the concept and emphasised its potential benefits for countless children.

Although our insights are based on preliminary first-hand impressions, they underscore the promise of this approach in fostering inclusivity and emotional connection.



Main Image: Final prototype of Kinesis Grove.

Above:
A range of processes were used in prototype construction.

Left:
Overview of gesture inputs used to activate product features.

Conclusion

As we conclude our exploration of the SHIFT Symposium, it is evident that the intersection of design and healthcare presents both significant challenges and opportunities, particularly in driving green transitions.

The symposium highlighted the importance of design in shaping new sustainable futures, offering collaborative experiences and engagement opportunities through materiality and interactivity.

By engaging with projects through physical artefacts, participants formed a stronger connection to the work itself.

The tangible nature of these designs, whether through sustainable resources, digital innovations, or immersive storytelling, allowed for a deeper understanding of the thought processes behind them. This interactive session allowed participants to walk in new shoes, igniting a rich dialogue around the ways in which we design for healthier, more sustainable futures.

Hosted and curated by early-career researchers at Design HOPES, part of the UKRI (AHRC)-funded Future Observatory Green Transition Ecosystem Hubs, SHIFT brought together designers, practitioners, and researchers to rethink the role of design in healthcare and sustainability.

This event inspired new dialogue, promising interdisciplinary engagement and information exchange across fields.

A recurring theme across the symposium was the role of design in addressing climate change, with a clear understanding of the need for innovation to incorporate sustainability into everything from healthcare systems to the objects we use in our daily lives.

As keynote speaker Ivor Williams reiterated, with an inspiring talk on the future of design in health and care to close the day.

The symposium not only showcased exceptional work but also raised important questions: Where do we go from here? How can we ensure that this gathering is just the beginning of meaningful change?

This way, the discussions and ideas from SHIFT will contribute to ongoing research, partnerships, and real-world applications, ensuring that the momentum continues. Many thanks to all participants, speakers and partners who contributed to the success of this event.

This is the next bit of design-led innovation in the world and your involvement and contributions are essential in writing its future.

Acknowledgements

The SHIFT Symposium Team would like to acknowledge the support and guidance received throughout the process of delivering this event.

We would in particular like to thank: Design HOPES Co-Directors Prof Mel Woods and Prof Paul Rodgers, our project manager Madeleine Rooney, our administrative wizard Ania Wieczorkowska, our communications maestro Neil McGuire and our knowledge exchange team Dr Jennifer Rao-Williams, Sharon Summers and Adele Piper.

We would also like to thank Civic House for hosting the event.

A special thanks to all of the contributors, without whom this event would not have been possible.

Book design and SHIFT branding by Lauren Bloor.

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UKRI Arts and Humanities Research Council

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Notes

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