Edmund Renew and Deborah Lupton *Creative Approaches to Health Information Ecologies,* 2023

Digital video, 9:32 mins

This short film uses insights from participants' responses to visual prompts in the 'new metaphors' activity in our Creative Approaches to Health Information Ecologies study. Following these online workshops, we transcribed and incorporated participants' responses into a script which we handed over to Edmund Renew, the commissioned filmmaker. Members of our team and other colleagues read excerpts from the script that Renew layered over images and sounds captured from nature. The resulting film brings these sensations, poetics, and images together to help audiences see and hear the sensory and affective forces that enlivened our discussions with the participants.

Vaughan Wozniak-O'Connor and Deborah Lupton *Homo Signorum for the Digital Age,* 2022

Laser-etched found MDF, acrylic, walnut, plywood

In this work, we extend and update the Zodiac Man concept by incorporating the contemporary forms of information that flow into and outwards from human bodies. Our reimagined *Homo Signorum* includes the digital information created when humans move in public spaces embedded with sensors, use mobile devices, or go online. The artwork includes these data forms together with attributes such as climate conditions and multisensory responses to other people, other living things, places, and spaces. The basis of this work is a heavily patinaed sheet of recycled timber, densely laser-etched with new traces. This material speaks to the complex, layered, and interwoven relationship between human health, climatic conditions, digital devices, and information. Throughout this project, we employed digital fabrication processes commonly used for mass production to create unique artworks, bringing digital data into contact with reclaimed materials.

Vaughan Wozniak-O'Connor and Deborah Lupton *More-than-Digital Data Cloud*, 2022

Laser-etched found MDF, walnut, plywood

More-than-Digital Data Cloud plays on the metaphor of cloud computing, a term used to describe external archives of digitised information. The work shows digital data in the form of a cloud but also incorporates other forms of information that people collect and interpret when they seek to improve their health and wellbeing. This information includes human interactions and engagement with elements of place and space, other living things, and features of the natural environment. We made *More-than-Data Cloud* using a digital plotter and laser-cutter to layer different materials and textures onto the heavily patinaed surface of a sheet of reclaimed waste timber. Layering traces onto an already dense surface is a deliberate extension of, and challenge to, conventional approaches to data visualisation. Data visualisations often present digital data as clear, legible, and straightforward. However, our artistic rendering suggests more complex relations between health, information, and technology – where data practices become implicated within broader planetary, atmospheric, and celestial systems, processes, and histories.

Vaughan Wozniak-O'Connor and Deborah Lupton *Smartphone Fungi*, 2023

Recycled European Oak, 3D printed resin, CNC-carved plywood

With this work, we seek to make connections to the marks made on living creatures by humans and the ways humans can use devices like smartphones to record aspects of their bodies and that of the natural world. A tree discovered on a bush walk in the Blue Mountains (Dharug Land) near Sydney (Gadigal Land) inspired *Smartphone Fungi*. The tree sprouted fungi of similar size and shape to the smartphone used to capture the image. Here, we utilised a piece of reclaimed timber to represent the tree, itself marked by its human use, and employed computer numerical control (CNC) carving to replicate the fungal shapes on the tree. We covered the central timber post with human and more-than-human traces, ranging from old tool marks to weather damage and wood borer holes. Alongside these traces, the CNC-carved fungi forms add a digital layer of human intervention. However, this does not attempt to contrast the digital and material: we seek to highlight how digital technologies rely on raw material and more-than-human worlds.

Vaughan Wozniak-O'Connor and Deborah Lupton *Hand of Signs*, 2023

Laser-etched walnut and plywood

This work reinterprets the practice of palmistry and refers to the newer tradition of digitising human bodies through scanning and data visualising technologies. In particular, *Hand of Signs* explores how spatial data, particularly GPS, is used to deduce patterns of human activity. In palmistry and more contemporary monitoring technologies, one's health can be deduced through the map, the lines of the palm and the errant traces of satellites and sensors. Using reclaimed wood to construct a human hand model, we compare the timber growth marks to those borne on the human body accrued as people move through more-than-worlds throughout their lifespans. The artwork also draws attention to the various 'signs' used across centuries to interpret the current and future health and wellbeing of humans, superimposing older and newer modes of corporeal knowledge.

Vaughan Wozniak-O'Connor and Deborah Lupton *Cabinet of Human/Digital/Data Curiosities*, 2023

Reclaimed timber, found objects, resin 3D prints

Cabinet of Human/Digital/Data Curiosities combines found objects from the past, such as prosthetic human eyeballs, teeth used in early dentistry, and old photographs. Taking our cue from this manner of display, we added our own curios. Interspersed among these relics are discarded mobile phones, displayed as antiquated objects for collecting, storing, and displaying information and images about human bodies. We also added new objects created using 3D printing and digital etching technologies. Together, this collection refers to the notion of information and data as human remains assembled to represent and visualise the exterior and interior of human bodies. Our objects are not fleshly parts of bodies like those encased in glass preserving jars in medical museum collections, but instead are human-made simulacra of body parts.

Sensory Experiments

These hands-on activities are designed to engage visitors in creative play and making to inspire reflection on the key themes of the exhibition. Visitors are welcome to interact with any of these 'experiments' in their own time.

- **Nature Mood Graphs**: Use the test tubes and natural materials provided to demonstrate how you are feeling today (for example, your moods and emotions, health states, wellbeing). Select some materials and pour them into the test tubes at levels that indicate the strength of your feelings.

- **Essential Elements Feely Boxes** (Fire, Earth, Air, and Water): Reach in to touch or smell the materials in the feely boxes. How do these sensations make you feel? What memories do they evoke?

- **Nature Scents-Making**: Sniff the selection of Australian bush scents. What feelings and memories do these evoke for you?

- **Wellness Worlds Sand Tray Dioramas**: Use the sand, figurines, and natural materials to create a diorama showing what people and things in your everyday life make you feel well or unwell.

Megan Rose
Silken Anatomies, 2023

Digital print on satin and yoru silk chiffon

Megan Rose's *Silken Anatomies* draws on collage and the material qualities of fabric, including the drape, sheen, and flow of silk to create a sensory experience. The panels depict reconfigurations of botanical and human forms that drift through ethereal curtains of sheer yoryu silk chiffon. Referencing shrouds, the artwork surrounds and holds the audience passing through. They combine an animal-made material (crafted by silkworms) with more-than-human images featuring humans and other living creatures. The silk provides a sensuous canvas for historical images that can be touched. These more-than-human illustrations speak of the early modern natural science visualisations that underpin contemporary digital images of the human body and the more-than-human world. Rose gives the vibrancies of these beautifully engraved and coloured anatomical plates a new life and feel, both affectively and sensuously. She returns the digital to the tangible.

Ash Watson, Megan Rose, Deborah Lupton, Jacinthe Flore, and Emma Quilty *Re-Imagining Care Though Arts-Based Method,* 2022

Digital inkjet on paper, open edition

This zine is from a workshop at the ARC Centre of Excellence in Automated Decision-Making and Society's annual symposium in 2022. One workshop activity prompted participants to use craft materials to construct novel automated technologies for care that they would like to see designed and developed in the future. A second activity asked participants to select one type of care robot (existing or imagined) and write or sketch a short graphic fiction storyboard about what life was like from the perspective of this robot. The zine is a collaboration between our team and selected participants following the workshop to create an open-access record of the event. The zine details the activity prompts and analyses the themes emerging from the activities and group discussions. It uses digital software and hard-drawn images to illustrate the activities and themes and includes photographs documenting the workshop, participants, and the works they crafted.

Ash Watson
Talking/Flowers, 2023

Collage and digital inkjet on paper

This zine explores health information and healthcare encounters by layering a range of materials: clippings from MRI scans, digitally altered images from medical infographics, and found poetry made from research publications. The zine remixes and reconstitutes key documents of authority in health institutions that continue to take primacy as evidence. While vital for diagnosis and treatment, such documents can become black boxes of meaning, distancing health professionals from consumers and consumers from agentic understandings of their own health. In *Talking/Flowers*, Ash Watson combines medical materials with imagery, textures, and recollections of personal experience; the pages also feature leaves, flowers, fungi, and oceanic tones. Two original poems explore moments of relational vulnerability, where information and communication jar the encounters, and more-than-human metaphors hold space for complex feelings.

People of signs in more-than-human worlds

More-than-human perspectives adopt an approach to understanding the nature of human existence in a way that decentres the human and challenges post-Enlightenment Western concepts. They see human bodies and selves as inextricably entangled with nonhuman agents. These agents include other animals and living things and features of place and space, such as the atmosphere and celestial bodies, climate conditions, geological formations, and bodies of water. More-than-human philosophers argue for the importance of acknowledging our kinship with other living and non-living things to reposition ourselves within the cosmos and work towards better health and wellbeing for the planet.

For millennia, diverse forms of two-dimensional and three-dimensional documentation and modes of materialising human bodies have been used to help people understand states of health and illness. Such figurations frequently involved collaborations of skilled artists and craftspeople with philosophers, botanists, herbalists, anatomists, physicians, and other healers.

Zodiac Man/*Homo signorum*

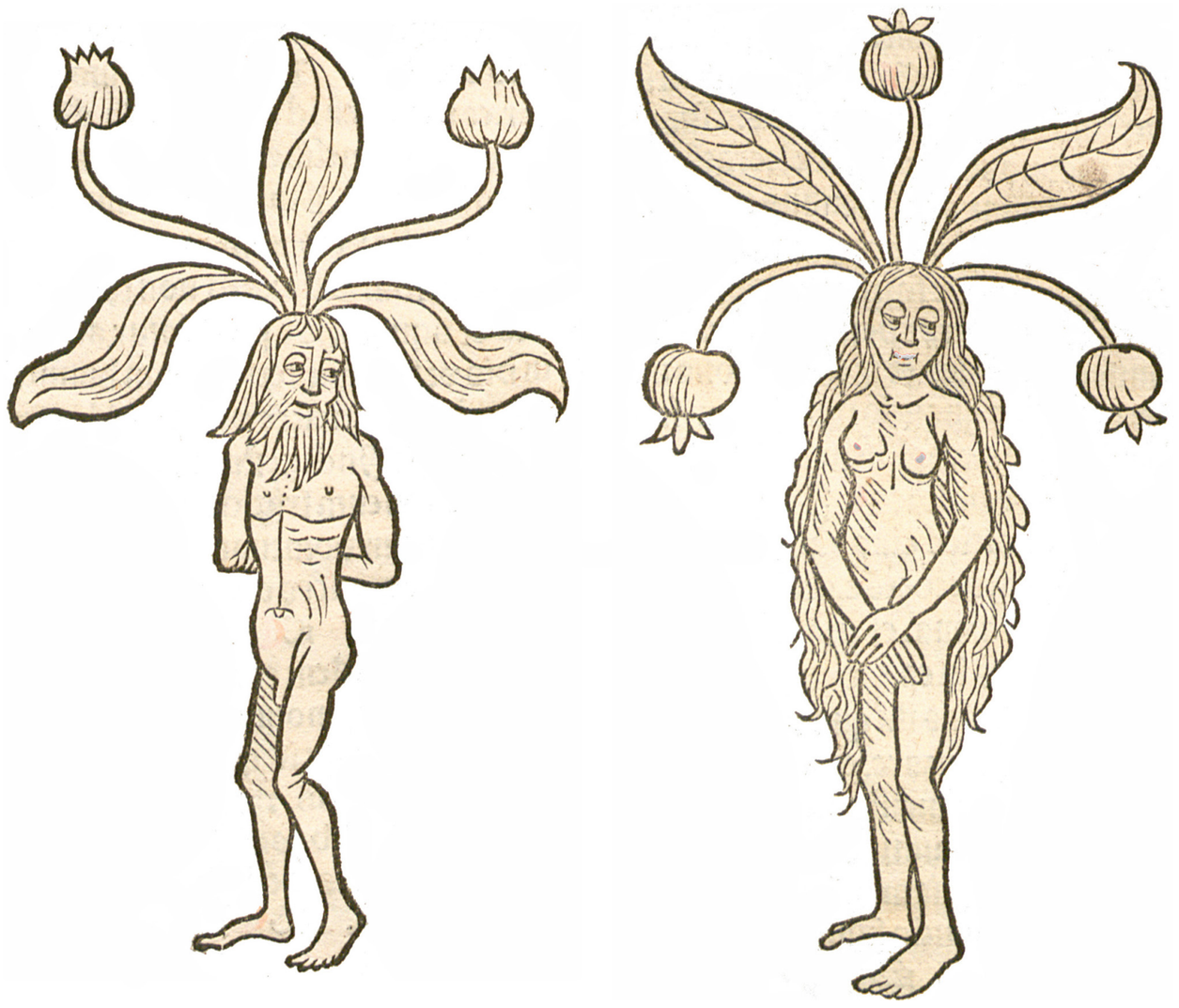
Zodiac Man/*Homo signorum* ('Man of signs') is the most ubiquitous medieval medical depiction of the human body in Europe, the Middle East, and Asia, showing the relationship of celestial phenomena to the human body. Images of this 'man of signs', appearing in medical texts and almanacs, depict 'melothesia': the idea that the stars, the moon, and the planets directly influence the human body. They typically show a male human body with the signs or names of zodiac entities alongside the body parts they were thought to influence. Healers used these images as tools to determine the best time to provide medical treatments such as bloodletting or herbal remedies.

Gutun Owain. The Zodiac Man in *Calendar, a Treatise on Urine, Etc*, Wales, 1488-1489.

Source: Llyfrgell Genedlaethol Cymru – The National Library of Wales. Public Domain.

Mandrake people

The mandrake human entity, portraying a medicinal plant root that typically grew into a human-like shape, is common in ancient medical texts. Ancient Greek physicians used mandrake root as a surgical anaesthetic. It was associated with the supernatural, curses, and witchcraft in Europe, with folklore about its powers evident well into the 20th century. Mandrake was known to cause hallucinations and delirium when consumed. It was believed to have human-like properties due to its shape and was said to emit a shriek when pulled from the ground that was so shocking that it could kill a person. This image shows Mandrake man and woman illustrations from *Ortus Sanitatis* ('Garden of Health'). This manuscript is the first known natural history encyclopedia, compiled and published in Germany in 1491. The encyclopedia represents the prevailing belief of the era that God created plants, animals, and other elements of the natural world to be used by humans to treat disease.

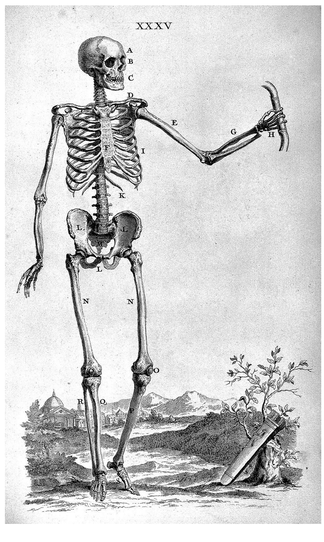


Unknown artist. Mandragora Mann und Frau (Mandrake man and woman). Reproduction of images in *Ortus Sanitatis* ('Garden of Health'), published by Jacob Meydenbach, Germany, 1491.

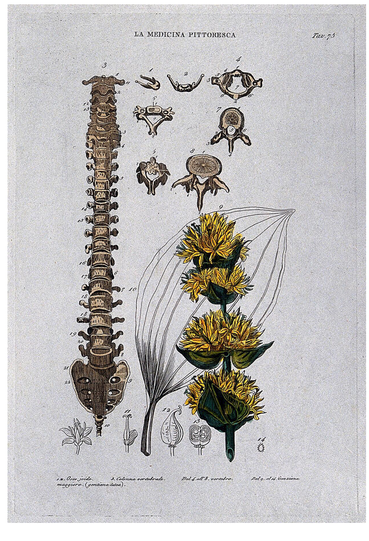
Source: Wikimedia Commons. Public Domain.

Anatomical and botanical illustrations

In the 16th and 17th centuries, the production of detailed scientific illustrations of plants and animals intersected with a desire to document elements of the human body for medical knowledge as part of a general interest in natural history. Human anatomical knowledge began to develop rapidly during this period, partly due to an increase in the practice of dissecting human bodies to investigate how body organs and systems worked, despite a prevailing social and religious taboo on using cadavers. There were also overlaps with the longstanding use of plants and parts of other animals for medical treatment and study, including education in both human anatomy and botany. Illustrators often worked on botanical and human anatomical drawings, seeking to produce highly realistic yet beautiful images showing these human systems and body parts as set within the natural world and also separate from it. Later illustrations adopted a more scientifically realistic portrayal focusing on representing the detail of individual body parts. They sometimes placed human anatomical and botanical details side-by-side, demonstrating similar morphological structures, as in lithographs published in the Italian 19th-century volume La *Medicina Pittoresca* ('Medical Atlas').



William Cheseldon. One of his illustrations in *Ostoegraphia, or the Anatomy of Bones*, England, 1733.
Source: Wellcome Collection. Public Domain.



Unknown artist. *Anatomy and botany; top, hyoid bone and vertebrae; left, vertebral column; right, gentian*, published by G. Antonelli, Italy, 1834-1837.
Source: Wellcome Collection. Public Domain.

Human anatomical models

Throughout history, natural materials such as ivory, wax, and wood have been used to make three-dimensional anatomical figures for pedagogical purposes. While there are records of these models dating back to the medieval period in Europe, China, and Japan, such objects became particularly important for medical instruction during the Renaissance. The construction of these models involved the skilled work of artists collaborating closely with anatomists and physicians. Unlike human cadavers, which before the late 19th century were touched and dissected only by instructors with medical students looking on, people could handle these models and thereby learn through touch and sight.

Unknown artist. Wooden female anatomical figure, Europe, 1601-1700.
Source: Science Museum, London. CC BY 4.0.

People of flowers, fruit, and tools

During the Renaissance, artists also imagined human bodies as comprised of objects such as flowers and fruit, with perhaps the most well-known artworks of this kind produced by the 16th-century Italian painter Giuseppe Arcimboldo. Arcimboldo's painting *Portrait of Rudolf II as Vertumnus* is a portrait of Holy Roman Emperor Rudolf II as Vertumnus, the Roman god of the seasons, growth, plants, and fruit. It is one of Arcimboldo's many 'composite heads'—described as 'bizarre yet scientifically accurate' – which involved portraits featuring aspects of each of the four elements or seasons represented in their facial features. At this time, other artistic portrayals of human bodies incorporated technologies into a more-than-human figuration. One example is the 16th-century woodblock print entitled *Instruments of Human Sustenance (Humani Victus Instrumenta): Agriculture*, depicting a man comprised of the tools of his labour.

Giuseppe Arcimboldo. *Portratt, Rudolf II som Vertumnis ('Portrait of Rudolf II as Vertumnus')*, Italy, 1591.

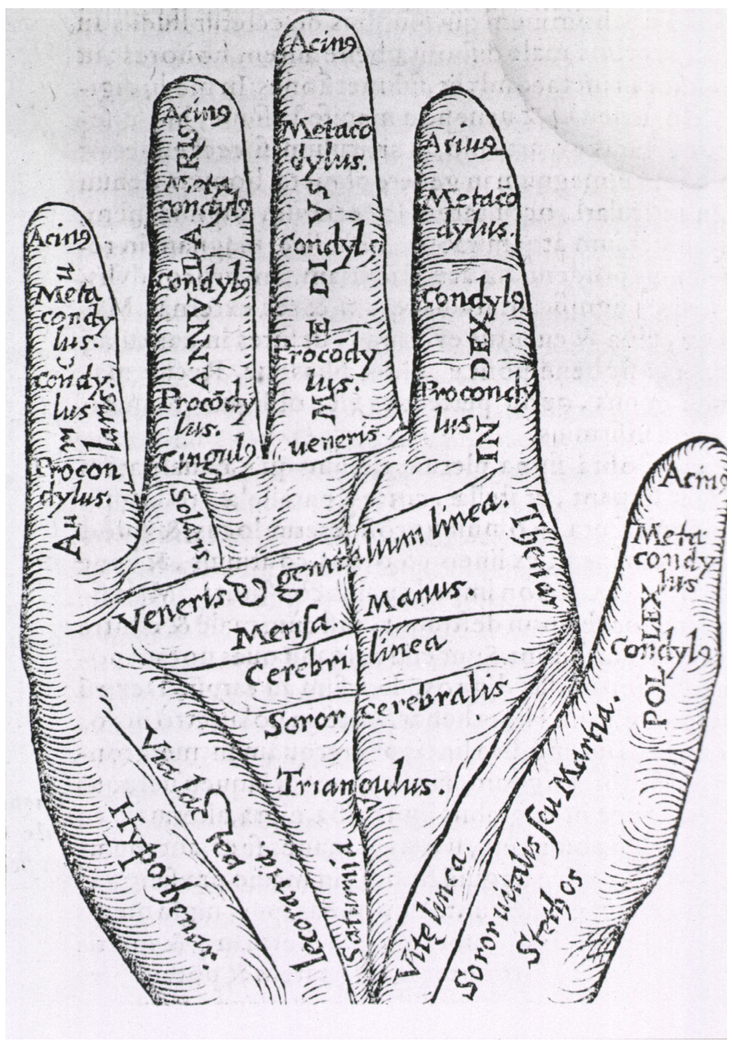
Source: Wikimedia Commons. Public Domain.

Unknown artist, in the manner of Giuseppe Arcimboldo. *Instruments of Human Sustenance (Humani Victus Instrumenta): Agriculture*, Italy, after 1569.

Source: The MET. Public Domain.

Reading the signs of the body

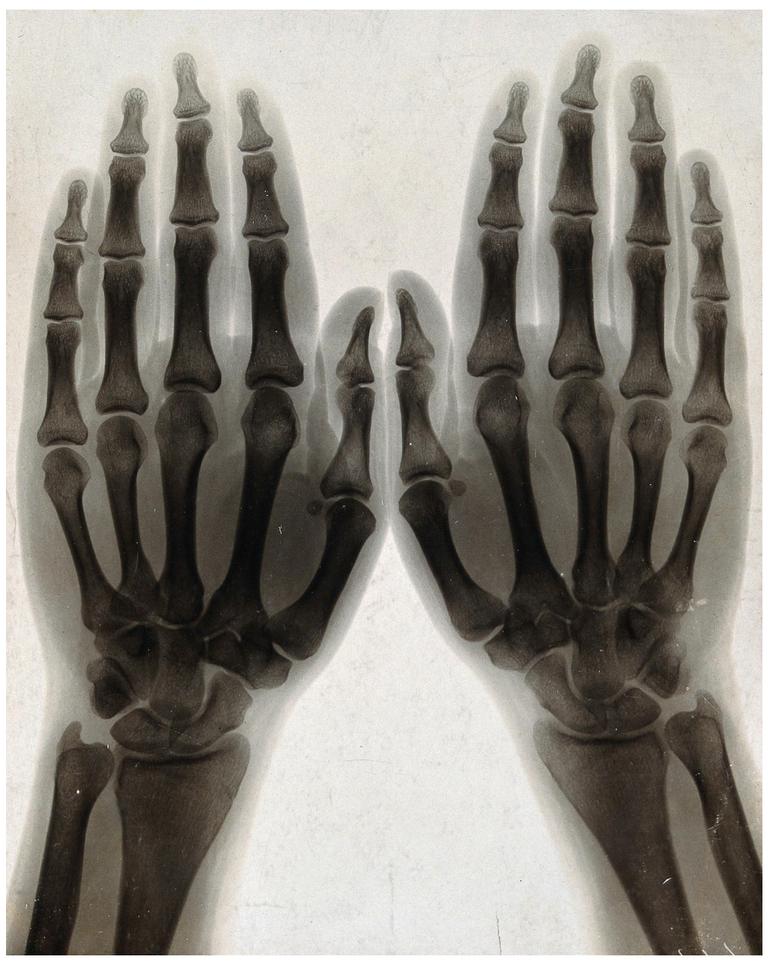
The art of palmistry, involving interpreting the lines on the palms of human hands, has been used worldwide for centuries. Together with other ways of 'reading' human bodies from their morphological characteristics, palm reading is a way of abstracting elements of human flesh or bone into legible patterns of meaning. Long practised in Asia, palm reading became widespread in countries of the Global North, such as France, the UK, and the USA, in the mid-to-late 19th century. It remains popular today in many cultures as a way to identify people's personalities, diagnose their health states, and predict their futures.



Girolamo Cardono. Palmistry diagram published in *Matthaeum Vicentium*, Italy, 1558.
Source: National Library of Medicine.
Public Domain.

Digitised bodies in medicine

Currently, modes of recording, documenting, and materialising human bodies and health states frequently rely on imaging technologies, digital data collection, and processing. These technologies can peer inside the hidden recesses of the body to monitor and measure aspects of human life that might otherwise be difficult to discern. Biometric monitoring technologies, such as digitised fingerprinting, iris scanning, and facial recognition software, now join medical diagnosis technologies such as ultrasound, radiography, magnetic resonance imaging (MRI) and nuclear medicine in visually portraying the signs of the human body. There are also new opportunities to materialise information about human bodies and body parts into three-dimensional (3D) models. 3D printing technologies can fabricate anatomical models using the data from digitised scans of patients' bodies to generate replicas morphologically unique to each patient. These models are used in patient education and for planning surgery.



Two hands, viewed through x-ray. Made under the direction of Sir Arthur Schuster, England, 1896.

Source: Wellcome Collection. Public Domain.

3D printed liver model for preoperative planning. Made by Jan Witolski, Poland, 2018.

Source: Wikimedia Commons. CC BY-SA 4.0.

Everyday digitised bodies

Beyond the medical domain, there are manifold ways in which human bodies are digitised and datafied with and through their encounters with mobile devices and apps, social media platforms, telemedicine, geolocation and facial recognition software, and other computing technologies. As human bodies have become increasingly abstracted and individuated with and through digitisation processes, their relational connections to the external world, including to other humans, other living creatures, and elements of the natural environment, have progressively dissolved. The concept of digital health fails to recognise the reciprocities and mutual dependencies of people with the other agents of more-than-human worlds. In industry promotional materials and computer science texts, the archetypal 'digital human' appears as an autonomous figure comprised of digital data with information flowing from the body to apps, devices, and platforms for algorithmic processing. Such information is either used by third parties for financial gain or returned to the user as data visualisation: typically as figures and graphs depicting features of the human body like physical activity levels, geolocation, heart rate, body weight, energy expenditure, and other biometric attributes. Together, these sources of lively data assemble to configure new 'people of signs': de-corporealised and atomised data sets in which the sensorial and fleshly aspects of human existence are rendered invisible.

Smartphone with physical activity app display
Source: Deborah Lupton