

# Digital Human Twins – Our Future Data Selves: Artistic Perspectives on Identity, Embodiment and Agency

Ghislaine Boddington<sup>1</sup>

s.g.boddington@greenwich.ac.uk

<sup>1</sup> University of Greenwich, London, UK

<sup>2</sup> BRAINS Lab, Kingston University, London, UK

Keywords: Digital Human Twins; Self & Identity; Embodiment; Ethics; Hybrid Presence.

## Abstract

*This keynote advances a practice-as-research framework for Digital Human Twins – AI-enabled companions that evolve with us across life. Drawing on the findings of my research “My AI Hybrid BioTwin” I examine identity, embodiment, care, work and governance, foregrounding data sovereignty, psychological impacts and co-creation methods for human-led, ethical Digital Human Twins.*

## 1 Introduction

Digital Human Twins are conceived here as authentic, AI-enabled companions that grow, learn and co-create alongside an individual from birth to (and potentially beyond) death. They extend presence across time and space as allies, collaborators and representatives, raising profound questions for identity, autonomy and lived experience. This work emerges from three decades of practice interrogating the body as interface, presence and trust in hybrid environments, and the Internet of Bodies research programme [2].

## 2 Methodology: Practice-as-Research & Knowledge Exchange

The My AI Hybrid BioTwin [1] project applies a practice-led methodology combining expert roundtables, student focus groups, invited keynotes and podcasts, iterative ‘living report’ synthesis, and speculative scenarios (‘day-in-life’) to test human experience, trust and agency in future DHT use. The approach emphasises co-creation with public and industry, and staged outputs (reports, broadcasts, symposiums, interactive installations) to surface socio-technical trade-offs. e.g the BBC World Service commissioned 50minute radio show “The Documentary - Me and my digital twin” led to global listener responses [4].

Analysis is structured through four lenses: (1) Self & Identity; (2) Health & Wellbeing; (3) Education & Work; and (4) Governance & Security.

## 3 Findings

### 3.1 Self & Identity

DHTs are framed not as static projections but as **co-created, evolving companions** that mirror lived experience and affect. This implies a move from representational accuracy to *relational authenticity*: the meaningful alignment of a twin’s behaviour with a person’s

changing values, emotions and cultural context. This approach positions the twin as a site for self-reflection and creative authorship rather **than a mere** likeness.

A central tension is **self-sovereignty versus external control**. Without user ownership of biometric, behavioural and cognitive traces—and interoperable identity mechanisms—DHTs risk becoming extractive instruments of corporate or state power. The research therefore calls for decentralised identity, portability and consent-by-design as preconditions for person–twin alignment across platforms and lifecycles.

Finally, identity work must be inclusive from the outset. Bias in training data and commercial deployments of synthetic humans (e.g., deepfakes/virtual characters) already challenges authenticity, consent and provenance; design responses should embed diversity-by-default and visible provenance cues to sustain trust in blended physical–digital personhood.



*Dare we do it realtime? EU Culture project directed by Ghislaine Boddington, body>data>space (2009)*

### 3.2 Health & Wellbeing

The health lens highlights the promise of **real-time biometric integration** and predictive modelling for preventative care, chronic condition management and mental-health support. A continuously updated bioprofile

could surface early warnings, tailor self-care and scaffold behaviour change via feedback loops that are legible to non-experts.

However, **biometric ownership and governance are non-negotiable**. The project identifies risks from surveillance, commercial data brokerage and model hijacking, arguing that intimate physiological and affective data must remain user-owned, revocable and protected through security-by-design. Absent such guarantees, the psychological safety on which health adoption depends is undermined.

Beyond the individual, anonymised aggregation across diverse twins could inform **collective intelligence** for public health, provided robust privacy, consent and benefit-sharing mechanisms are instituted. This places emphasis on transparent stewardship models and civic oversight to avoid a slide into “big data for good” narratives that recentralise power.

### 3.3 Education & Work

Across learning, DHTs function as **adaptive mentors** that track cognitive/affective states and personalise pathways over a lifetime—supporting metacognition, accessibility and employability. Project scenarios detail classroom use (XR labs, real-time pacing, formative feedback), peer collaboration and stress-aware study support, extending into workplace simulation and upskilling.

The stance is augmentation, not substitution: twins as **co-pilots** that learn with the user, rather than replacements. This requires clear pedagogical contracts—teacher authority, human mentorship and social-emotional learning remain primary—plus safeguards around analytics misuse, profiling and bias in recommendations.

Lifelong learning follows from portability: a learner’s twin should carry **interoperable memory** across institutions and jobs to reduce friction, while preserving the learner’s control over disclosure and downstream use. Ethical adoption depends on privacy-by-design, data minimisation and the right to reset/forget within educational and corporate systems.

### 3.4 Governance & Security

Governance priorities concentrate on **data rights, portability/interoperability and anti-impersonation protections**. The materials foreground user ownership, transparency and accountability as baseline, extending to provenance signaling and red lines against affective manipulation. These are positioned as necessary to counter deepfakes, model hijack and enclosure of identity by platforms.

Security is inseparable from dignity: where twins can act or speak on behalf of a person, **integrity controls** (authentication, revocation, granular permissions) are essential. The work also addresses **posthumous avatars** [6], arguing for consent frameworks that respect family/community while upholding the rights and wishes of the deceased.

Finally, the project argues for **ethics-by-design** and multistakeholder oversight, aligning technical standards with civic expectations. Cross-platform portability should prevent lock-in and enable people to move their twins (and histories) safely, sustaining agency across ecosystems rather than ceding identity to a single vendor.

## 4 Contribution to IDW (Displays, Avatars & Hybrid Presence)

For display and the UX communities, this work reframes design targets from photorealism to ‘relational authenticity’: affective attunement, legible agency, consent cues and co-presence (gesture, gaze, touch) across XR and holographic media [7]. Needs outlined include mapping progressive requirements for trustworthy embodiment, long-term memory, and explainability in avatar interfaces that intuitively serve human aims - care, learning, accessibility and collaboration - rather than extracting attention or data. Designing for virtual physical blending space (hybrid presence) is essential from ideation onwards.[3]



Club Research – dual stage telematics directed by Ghislaine Boddington, body>data>space - London ICA to Bangalore (2003)

## 5 Ethical Framework (Summary)

**Identity & Autonomy:** Maintain human-over-model primacy; visible boundaries between person and proxy.

**Data Ownership:** Personal biometrics and behavioural traces must be user-owned, revocable and portable.

**Safety & Integrity:** Anti-impersonation, security-by-design, and red-lines for affective manipulation.

**Inclusivity:** Counter bias through diverse embodiment defaults and participatory design.

## 6 Conclusions

This keynote reframes Digital Human Twins as co-created, human-led companions that evolve with us across the life course. Findings across identity, health, learning and governance indicate strong benefits - personalised reflection, care and continuity -conditional

on data sovereignty, legible agency and consent-by-design to mitigate risks of manipulation and over-delegation. We propose 'relational authenticity' as a design target for displays and avatars. A staged roadmap to 2035 prioritises interoperable identity and trust infrastructures so DHTs extend human potential rather than replace it. This practice-led research is ongoing as this topical area evolves alongside the technological, governance and ethical shift changes globally.

## **7 References (Selected, from project materials and appendices)**

[1] G. Boddington, "My AI Hybrid BioTwin – Living Report (Phase 1)" – in process - structure, pillars and focus group/roundtable synthesis. AI Ethics Overview. Education Brief. Foundational Technologies & Roadmap (2025–2035). Online - <https://www.internetofbodies.net/digital-human-twins>

[2] G. Boddington, "The Internet of Bodies – alive, connected, collective" AI & Soc - Springer, Vol.38, pp. 1897-1913 (2021)

[3] G. Boddington, "Virtual presence physical beings – From telegraph to telecast – a reflection on virtual beingness." Middlesex University Press/ResCen Centre for Creation Processes in the Performing Arts publications. (2000).

[4] G. Boddington, "The Documentary: Me and my digital twin", BBC World Service radio commission. Transcript. (2024)

[5] G. Boddington and co-editors, "The Collection - Digital Human Twins – our future data selves" AI & Soc – Springer (2025)

[6] S. Pitsillides and E. Sampson, "Postmortem life: thanobots, digital twins and feminist immortality," AI & Soc – Digital Human Twins collection (2025).

[7] S. Tauber, "Constructing and evolving with the virtual self: exploration of digital twins and experiential living. AI & Soc - Digital Human Twins collection (2025)