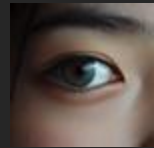
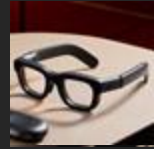


The Body Is the Interface

Symbiotic AI for the Physical World

Kay Hofmeester





Screens to Symbiosis

As AI leaves the screen
and enters our physical lives,
we're not just augmenting people—
we're forming a human-AI symbiosis.

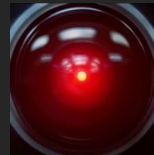
The interface will blur.

To design for this, we must treat
both as one interconnected system.



Ambient AI

Part 1



The Ambient Interface

Voice as the first invisible interface

- Natural, hands-free interaction
- Always available
- Limited environmental awareness



William Dersch, 1961

What I Learned from Alexa

- Voice alone is ambiguous without visual or physical cues
- Users need feedback to trust they've been understood
- Because voice systems lack situational awareness, they fall short of truly natural interaction

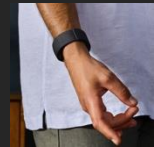
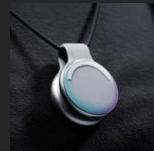
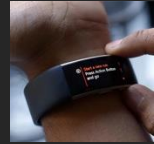


Voice Alone Was Never Enough

- Beyond voice-only interaction
- Toward environmental awareness
- From reactive to proactive

Embodied AI

Part 2



The Embodied Interface

- Intelligence is moving from room to body
- Interfaces are always available, worn, and ready
- On-body sensors capture audio, visuals, and movement
- Context becomes richer through proximity, motion, and environment



What I Learned from Orion & Ray-Ban Meta

- People want assistance, not constant distraction
- The most valued use cases are quick, purposeful, and situational
- But today's systems still rely on explicit commands
- Truly natural interaction requires understanding intent and context



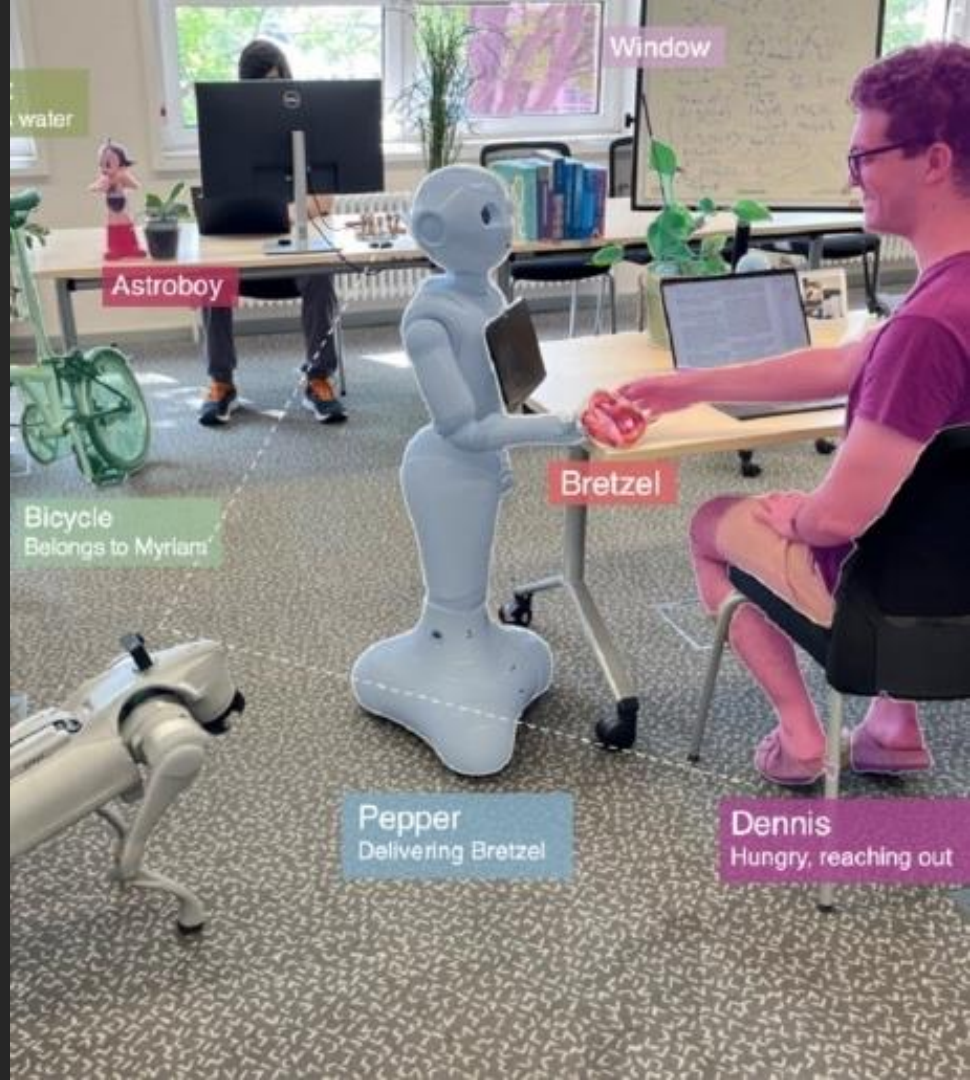
The World is Your Display

- Spatial, glanceable interfaces overlay the physical world
- Contextual intelligence guides what appears and when
- Multi-modal feedback across sight, sound, and touch
- Just-in-time UX that responds to you and your context



Contextual AI

Part 3



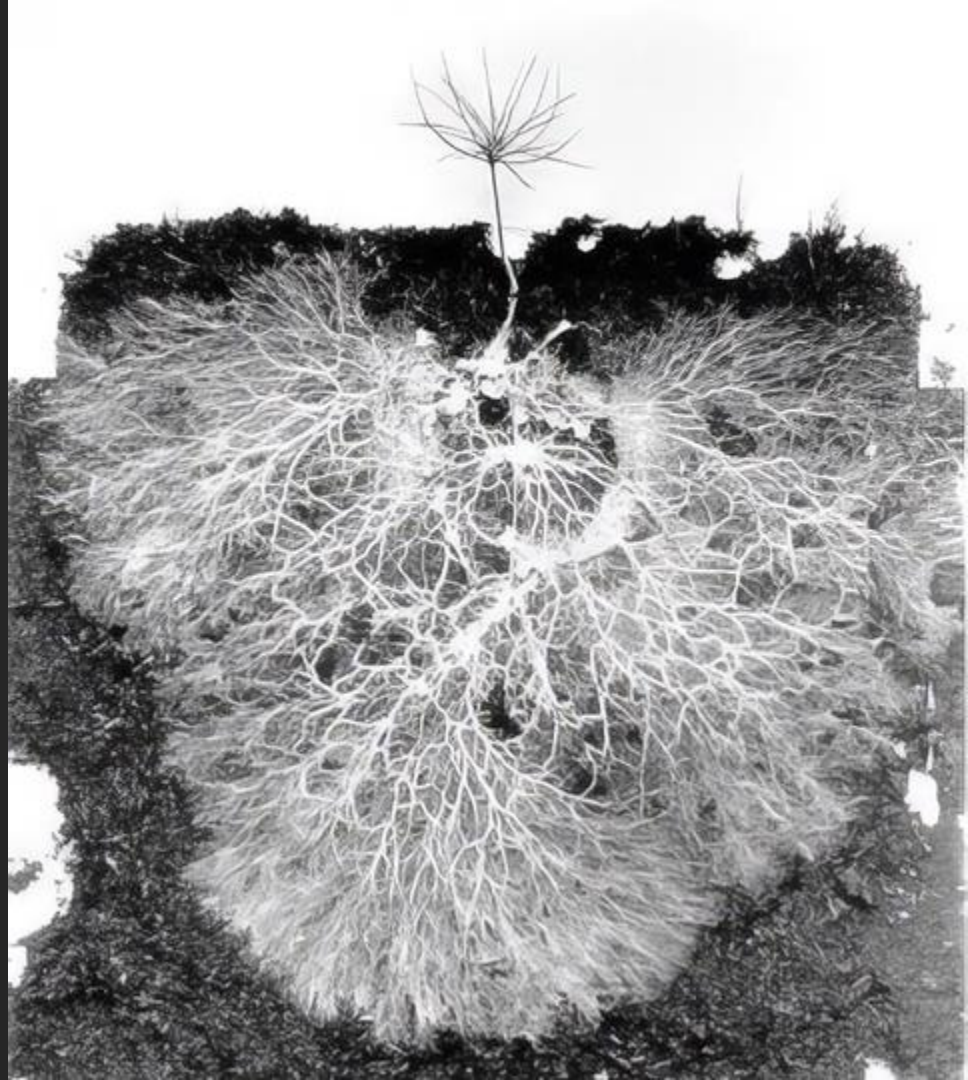
The Next Interface is You

- Input shifts to signals like gaze, motion, and physical presence
- AI understands your environment, behavior, and social context
- Interfaces adapt to what you're doing, where you are, and who you're with
- Context emerges from both the body and the world



Generative UX

- Generated in real time—not pre-scripted
- Adapts to behavior, environment, and intent
- Just-in-time experiences with minimal friction
- Personalized without configuration
- Disappears to preserve focus and calm



Design for Trust and Calm

- Transparency builds trust
- Consistency reinforces it
- Restraint creates calm
- Context-awareness sustains it



What **UX** paradigm can
unlock **AI's** full potential?

Symbiotic AI

Part 4



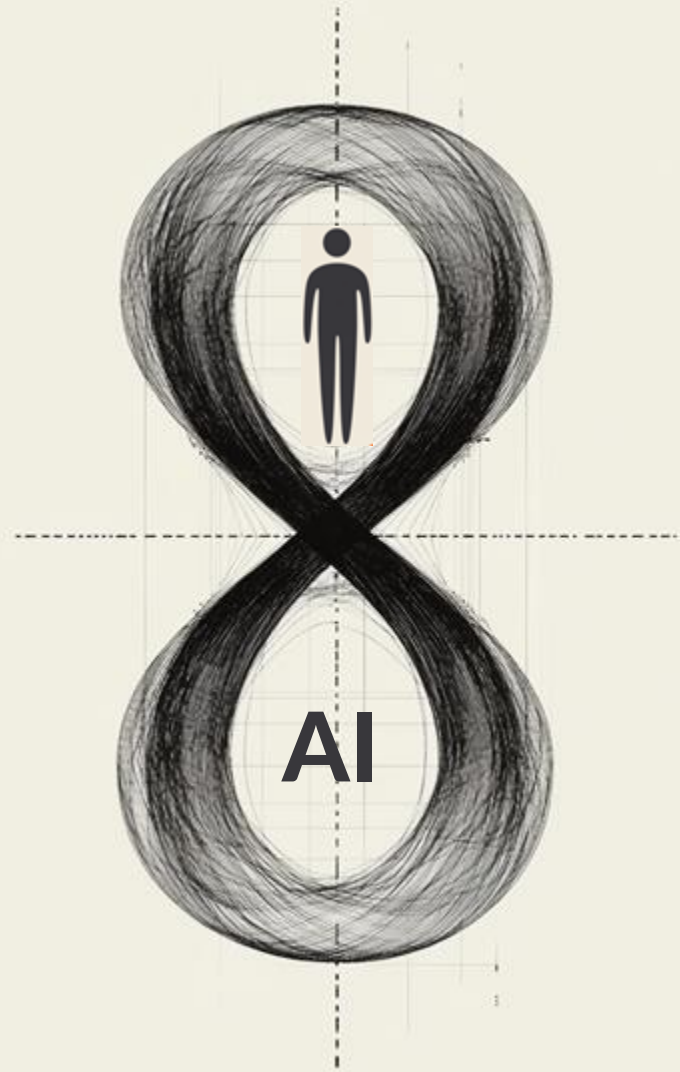
From Tools to Symbiosis

- Tool: separate, temporary
- Symbiosis: integrated, continuous
- As AI moves onto the body, it stops being a tool—it becomes part of us
- This intimacy creates a new kind of feedback loop—one based on mutual adaptation



A Tight Loop

1. Embodiment provides context
2. AI reasons about intent
3. A continuous loop forms through feedback and adaptation



The Qualities of Symbiotic AI

- Embodied presence
- Expanded awareness
- Just-in-time restraint
- Fuzzy interface
- Tight loops
- Interpreted intent
- Co-adaptation
- Co-agency
- Relational contract



The Qualities of Symbiotic AI

Awareness

Embodied presence

AI lives on or near the body—close enough to sense and support you in real time

Expanded awareness

AI perceives not just inputs, but your environment, behavior, and social context

Just-in-time restraint

AI surfaces only when needed, reducing noise and increasing relevance

Interaction

Fuzzy interface

Interaction is ambient, flexible, and often invisible—blending input with output

Tight loops

Continuous sensing and adaptation form a human/system feedback cycle

Interpreted intent

AI understands what you mean through your actions, not just commands

Relationship

Co-adaptation

The system and user evolve together—adapting to each other's rhythms over time

Co-agency

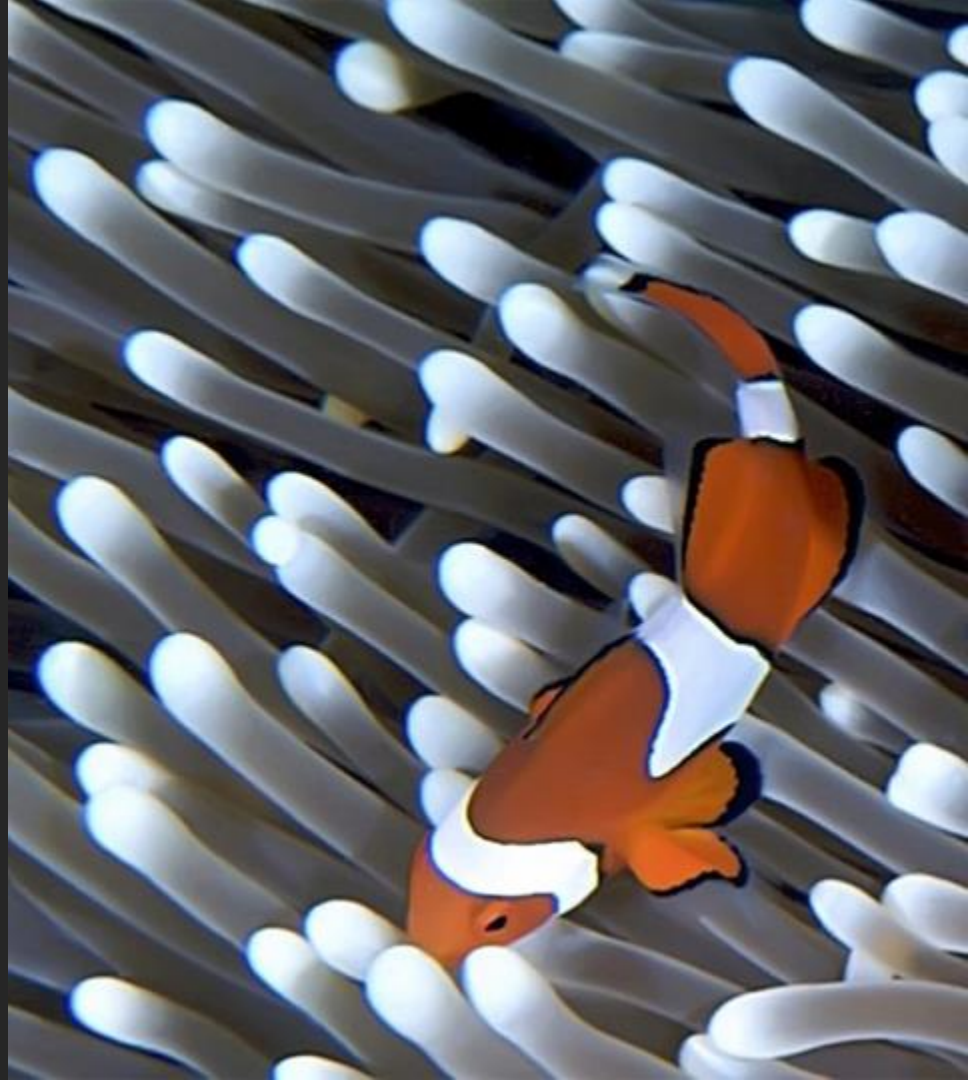
AI supports your goals, acting with you—not for you—based on earned trust

Relational contract

Trust is maintained through transparency, boundaries, and ongoing consent

Symbiotic Design Principles

1. Graceful Degradation
2. Transparent Boundaries
3. Respectful Presence
4. Progressive Trust
5. Local-First Intelligence



Final Thought

Symbiosis is a close, long-term interaction between two entities—where both influence and adapt to each other over time.

As designers, we don't just create systems—we shape relationships. Let's make them human.

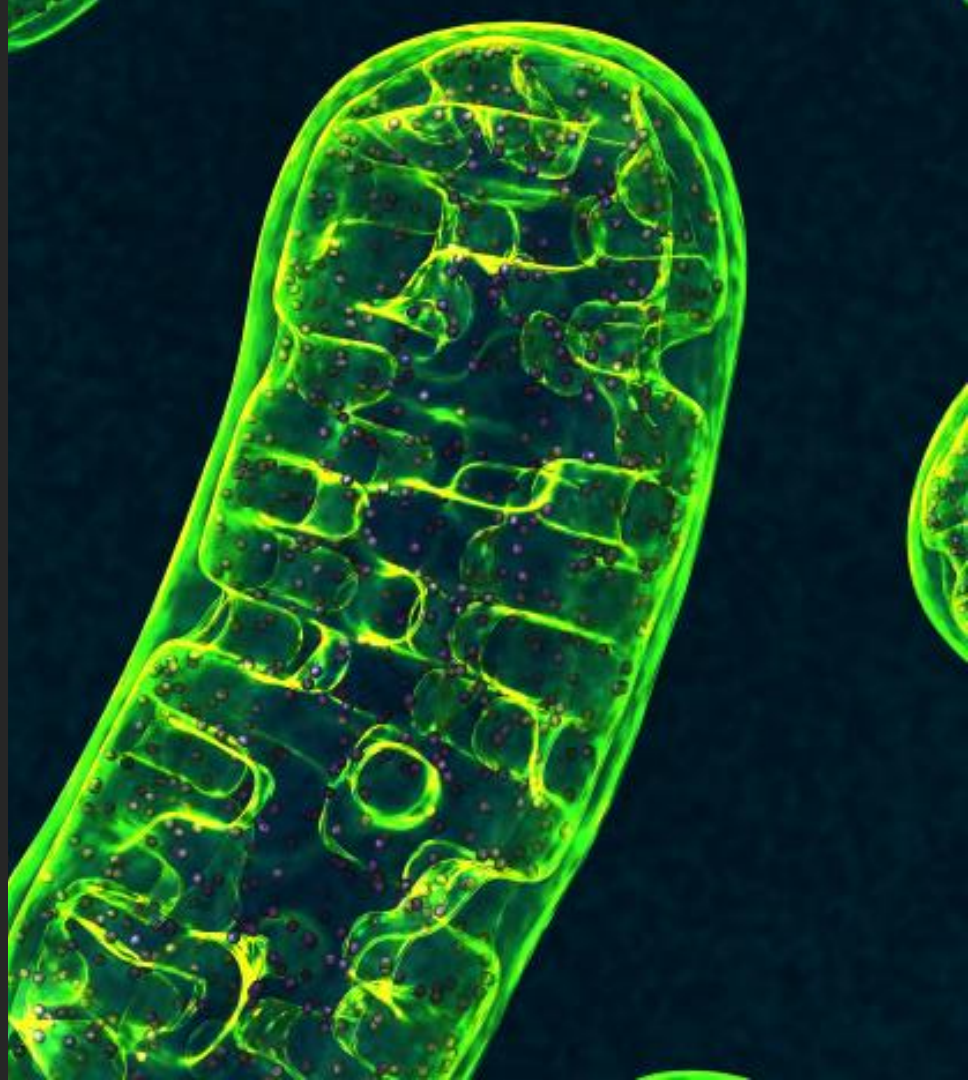


Image Credit

Slide 3 – Image: Evert F. Baumgardner / U.S. National Archives (c. 1958), Meta promotional image

Slide 5 – source: computerhistory.org/blog/audrey-alex-hal-and-more/

Slide 6 – Amazon promotional image

Slide 7 – HAL 9000 scene from 2001: A Space Odyssey

Slide 9 & 10 – Meta promotional images

Slide 12 – www.ki.uni-stuttgart.de/departments/sir/research/semantic-scene-understanding/

Slide 14 – Source: biostim.com.au

Slide 18 – Meta & Apple promotional images

Slide 23 - Image: National Institutes of Health (NIH)

Thank You

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*Automation replaces,
symbiosis empowers*

