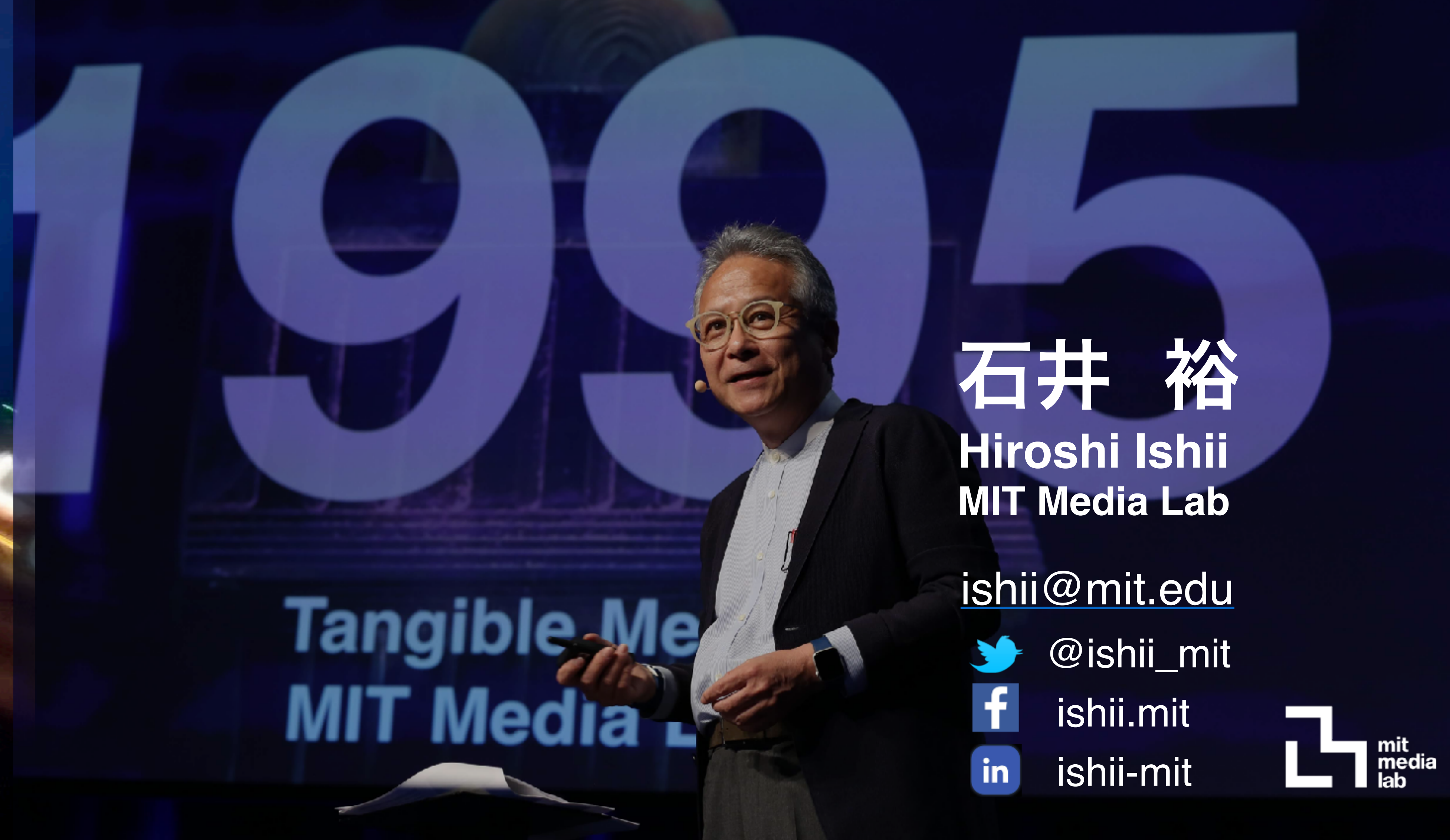


Impact ?!

The Churns and Turns of HCI:
Which CHI Papers Make the Most Impact in
an Ever-Growing Sea of HCI Publications?

April 29, 2025
CHI 2025, Yokohama, Japan



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 ishii-mit



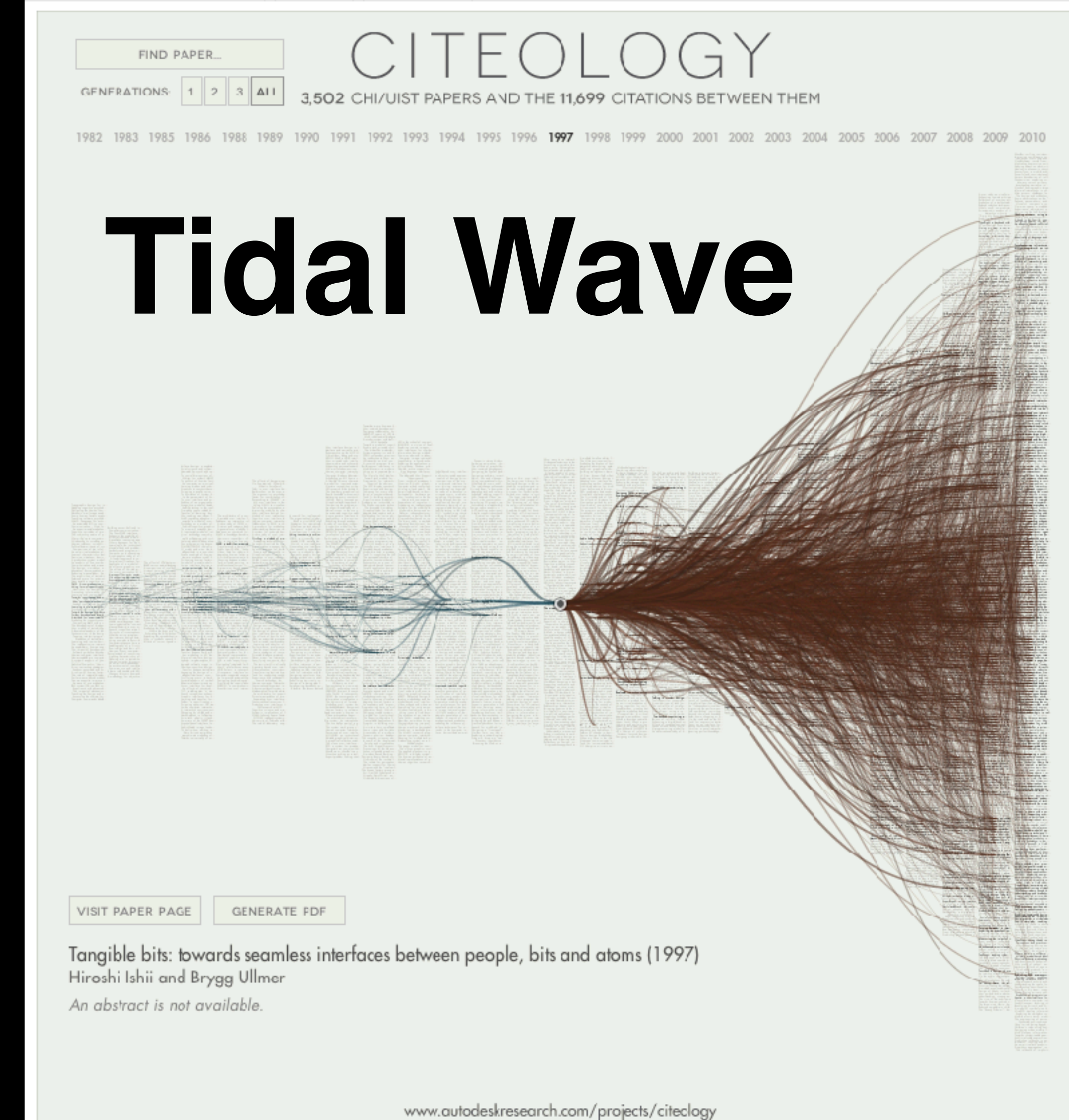
Impact of Tangible Bits CHI '97 paper visualized with Citeology

A paper is like a stone cast into the sea. Most stones sink quietly, vanishing into the depths, forgotten by time. But a rare few—imbued with purpose—send ripples across the surface, ripples that swell into waves, crossing oceans, reaching distant shores.

This is true impact— an unseen force that shapes the tides of thought.

Citeology: Visualizing Paper Genealogy (2012)

By Justin Matejka, Tovi Grossman, George Fitzmaurice, Autodesk Research
CHI '12 Extended Abstracts on Human Factors in Computing Systems, Pages 181–190 <https://doi.org/10.1145/2212776.2212796>



Why am I here? 19 ACM TEI Conferences since 2007

Community!

International Conference on Tangible, Embedded, and Embodied Interaction

The 20th TEI '26 will be hosted by the University of Chicago on March 8-11, 2026
<https://tei.acm.org/2026/>

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Why am I here? ACM SIGCHI Lifetime Research Award 2019

Recognition

CHI 2019 in Glasgow, UK

The ACM CHI Conference on Human Factors
in Computing Systems, May 4-9, Glasgow, UK



Albert-László Barabási

Author of *Bursts: The Hidden Pattern Behind Everything We Do*

+

THE

Formula

=

THE UNIVERSAL
LAWS OF SUCCESS

< THE SCIENCE BEHIND WHY PEOPLE SUCCEED OR FAIL >

The Formula

The Universal Laws of Success

By Albert-László Barabási · 2017

*Individual success is not solely based on personal effort or intrinsic merit, but largely depends on **how one's work is perceived and recognized by others.***

*Success is a collective verdict, not an individual attribute. The book reframes success as less about what you do and more about **how the world responds to it.***

Vision Driven

GUI PAINTED BITS TUI TANGIBLE BITS RADICAL ATOMS

THE PHYSICAL WORLD

THE DIGITAL WORLD

A Graphical User Interfaces only let users see digital information through a screen, as if looking through a surface of the water. We interact with the forms below through remote controls such as a mouse, a keyboard or a touch screen.

A Tangible User Interface is like an iceberg: there is a portion of the digital that emerges beyond the surface of the water - into the physical realm - that acts as physical manifestations of computation, allowing us to directly interact with the 'tip of the iceberg.'

Radical Atoms is our vision for the future of interaction with hypothetical dynamic materials, in which all digital information has physical manifestation so that we can interact directly with it - as if the iceberg had risen from the depths to reveal its sunken mass.

Evolving Visions

2020-2022
COVID-19 Pandemic



NTT Human Interface Labs

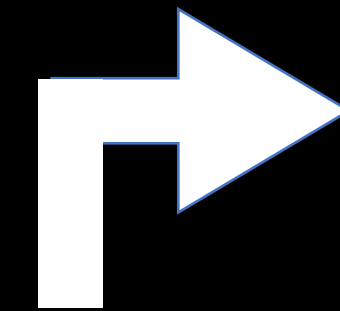
1995

MIT Media Lab

“REBOOT!”



Nicholas Negroponte
Feb. 10th, 1995



1995-2010

Tangible Bits



2005-2030

Radical Atoms



1990-1994

**Seamless
Telepresence**



1998-2030

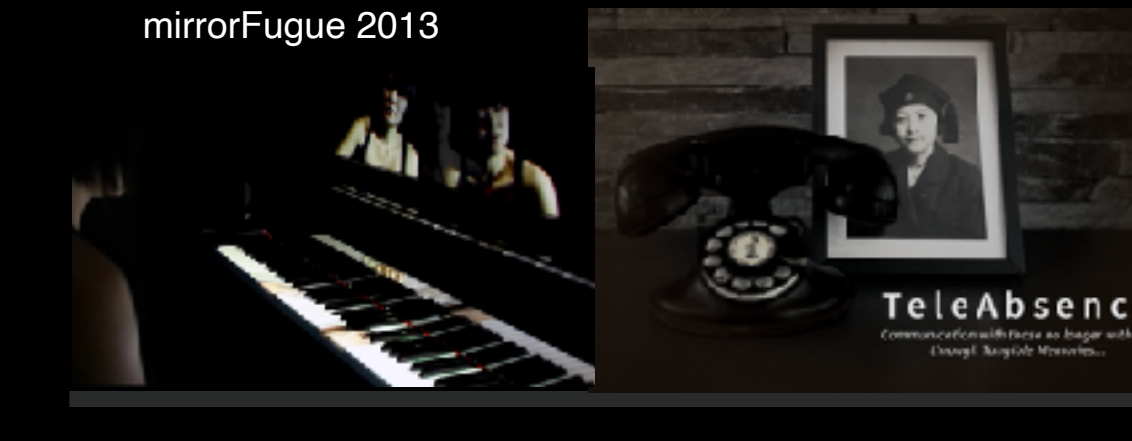
**Tangible
Telepresence**



2020-2200

TeleAbsence

Communicating with those no longer with us
through Tangible Memories to remember them

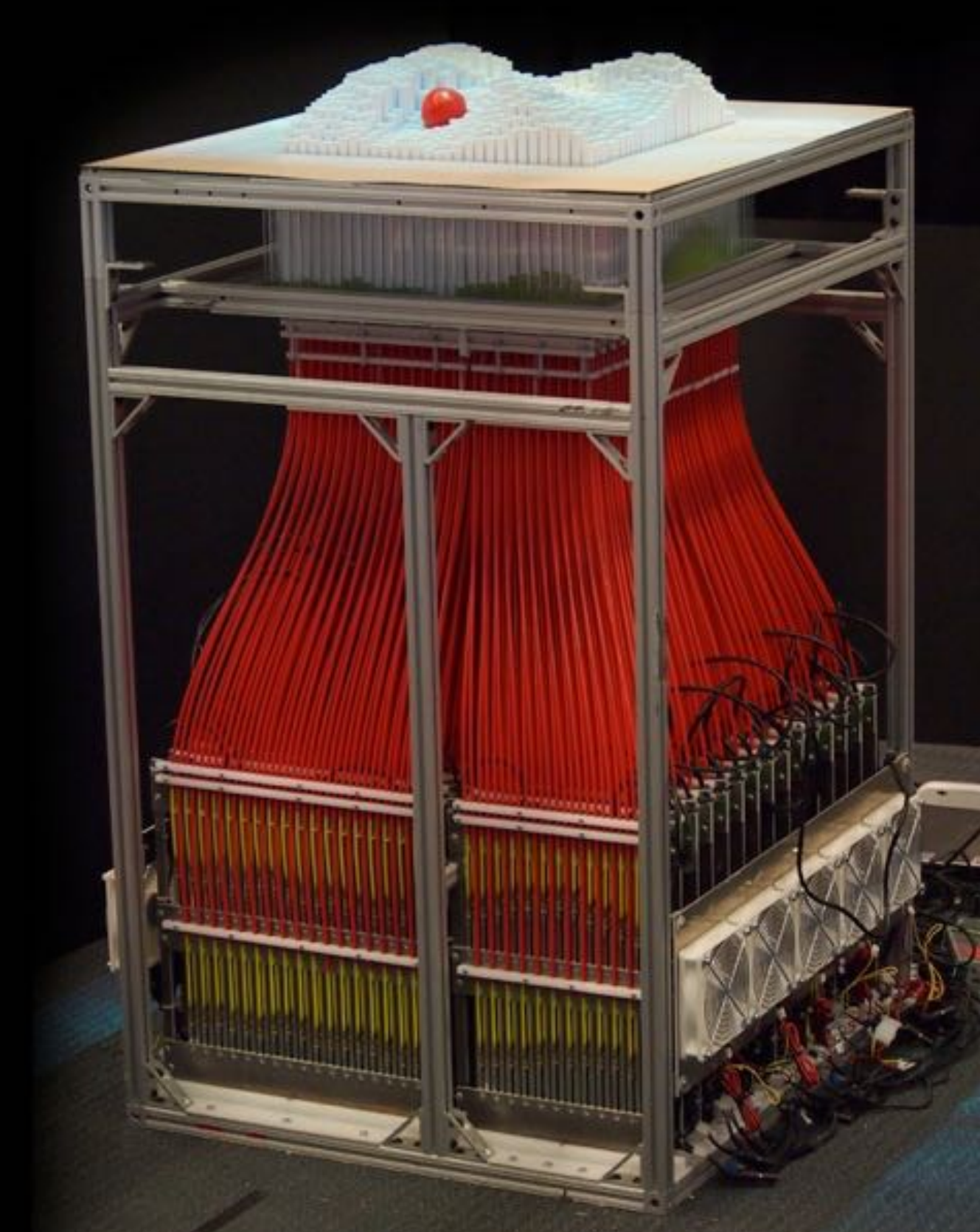


Presence of Absence

TeleAbsence

inFORM

Sean Follmer, Daniel Leithinger, Alex Olwal, Akimitsu Hogge, Hiroshi Ishii. UIST '13, '14



Fast Company Innovation by Design Awards: Winner - Experimental
Red Dot Award: Best of the Best - Design Concept
Laval Virtual 2014 Award - INDUSTRIAL DESIGN & SIMULATION
Core 77 Award - Interaction Student Winner
IDSA IDEA Award Bronze

TRANSFORM

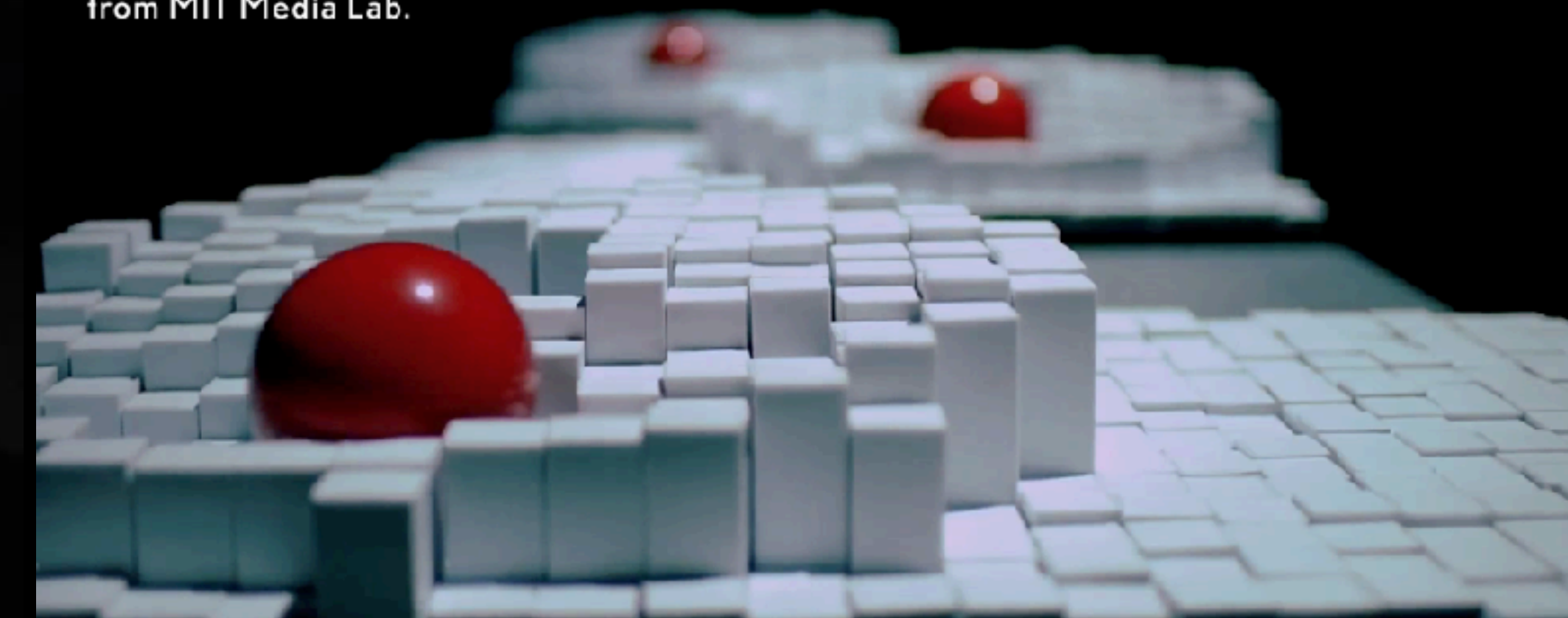
Hiroshi Ishii, Daniel Leithinger, Sean Follmer, Amit Zoran, Philipp Schoessler, Jared Counts
CHI '15, Milan Design Week '14, LEXUS DESIGN AMAZING 2014 MILAN

Platinum A'DESIGN AWARD 2015



TRANSFORM

Tangible Media Group led by Prof. Hiroshi Ishii
from MIT Media Lab.



LEXUS DESIGN AMAZING 2014 MILAN

“Beyond Tangible Bits, Toward Radical Atoms”

TeleAbsence

Connecting to Remote Time

*"People die twice.
First, when they die.
Then when they are forgotten."*

Rokusuke Ei (1933-2016)

The Last Vision

"I want to always remember you."

"I want to always be remembered by you."



Telepresence

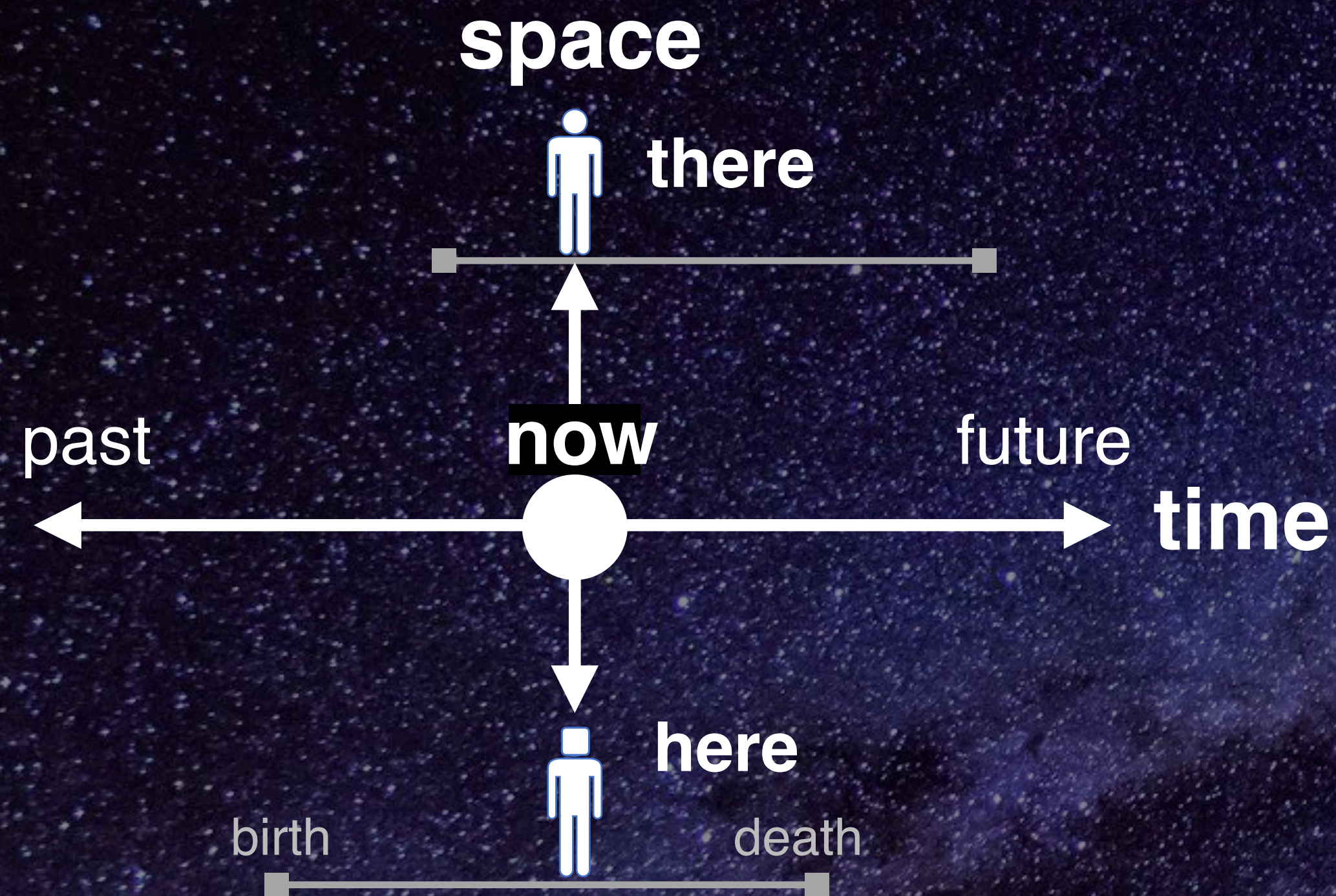
Connecting to
Remote Space

*"Being There and
Being Together"*



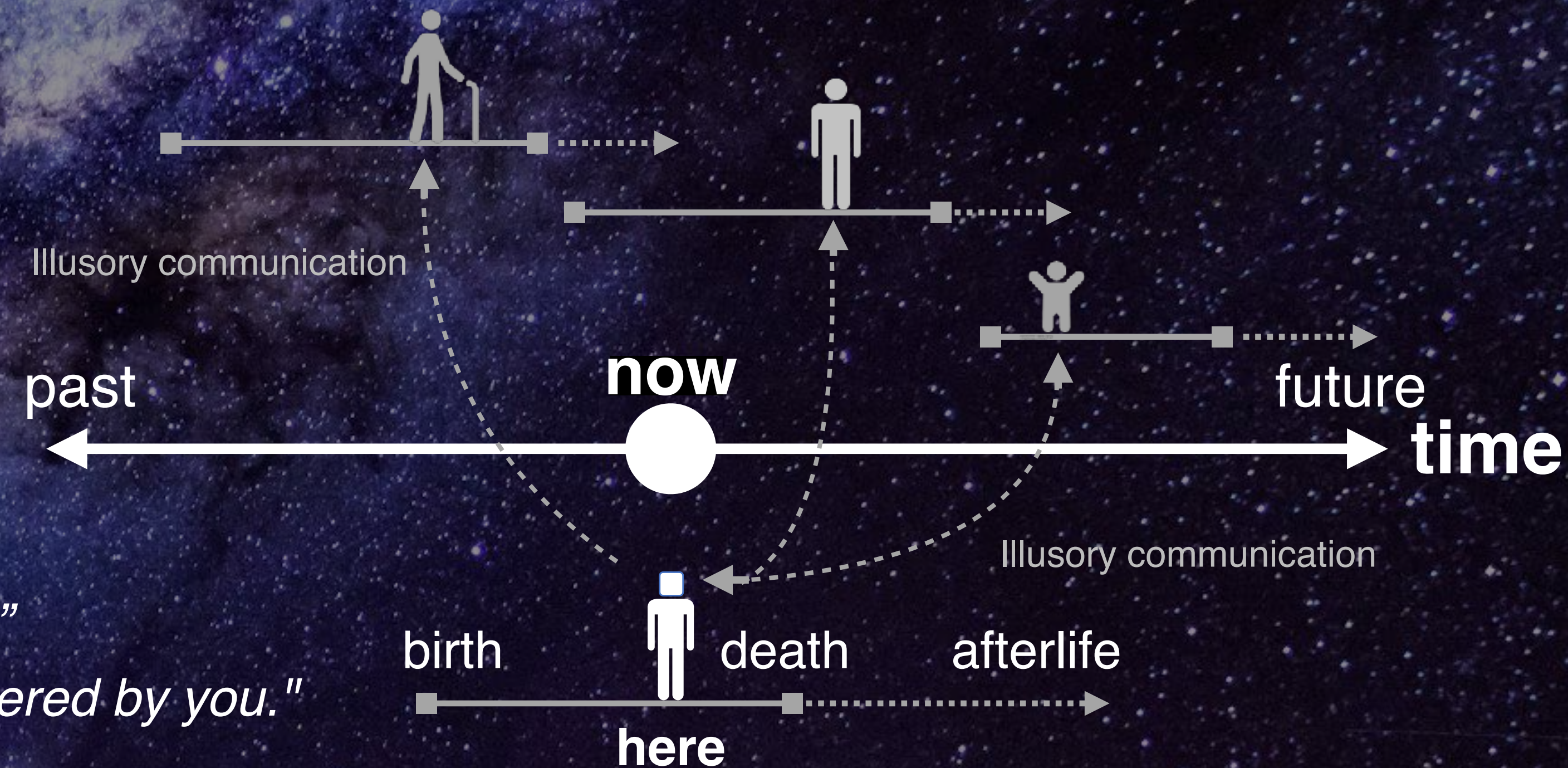
Telepresence

Remote Space/Real-Time



TeleAbsence

Remote Time/Nowhere



"I want to always remember you."

"I want to always be remembered by you."

TeleAbsence: A Vision of Past and Afterlife Telepresence

Abstract

This paper presents our vision of TeleAbsence, extending the concept of telepresence to the past and the afterlife to address the vast emotional and temporal distance caused by the memory of loved ones who drifted apart and faded away. Instead of explicit and literal representations of loved ones, TeleAbsence describes poetic encounters with digital and physical traces left by the absence of others. TeleAbsence fosters *illusory communications* to conjure the feeling of being there with those no longer with us without using synthetic or generative representations and utterances. Our vision is deeply inspired by the Portuguese concept “Saudade”—the “desire for the beloved thing, people, place, and moment, made painful by its absence.” We present our vision through five design principles: *presence of absence*, *illusory communication*, the *materiality of memory*, *traces of reflection*, and *remote time*, grounded in historical and cultural contexts. We present exploratory narratives to illustrate these principles and the concept of ambient co-presence using poetry, phone, piano, and pen as mediums. We discuss challenges and opportunities for future work, including representational strategies to depict lost loved ones, ethical issues, and the possible extension of TeleAbsence to historical public figures.

“In loving memory of Elise O’Hara (1986–2023) and Kazuko Ishii (1926–1998), whose presence is deeply felt every day.”

1 Introduction

“Absence is the highest form of presence.”
James Joyce (1882–1941)¹

Presence and absence are fundamental states of being for mortal humans: being present, proximate, or close; or being absent, far away, or lost. Our vision, TeleAbsence, expands the current scope of telepresence technologies by focusing on these profound states of being. Unlike traditional telepresence models that concentrate on real-time connections between the living and present, our vision extends to the memories of those who have faded away and the lingering echoes of past relationships. This paper introduces a design philosophy aimed at preserving these memories against the passing of time and the fear of being forgotten, responding to the universal longing encapsulated in phrases like

*Correspondence to: ishii@mit.edu

¹“Absence is the highest form of presence” is a quote commonly attributed to James Joyce, though its exact source is unverified.

TeleAbsence: A Vision of Past and Afterlife Telepresence (MIT Library)

<https://dspace.mit.edu/handle/1721.1/158451>



Hiroshi Ishii, Daniel Pillis, Pat Pataranutaporn, Xiao Xiao, Hayoun Noh, Lucy Li, Alaa Algargoosh, Jean-Baptiste Labrune; TeleAbsence: A Vision of Past and Afterlife Telepresence. PRESENCE: Virtual and Augmented Reality 2025; doi: https://doi.org/10.1162/PRES_a_00441



3 ways to impact the world:

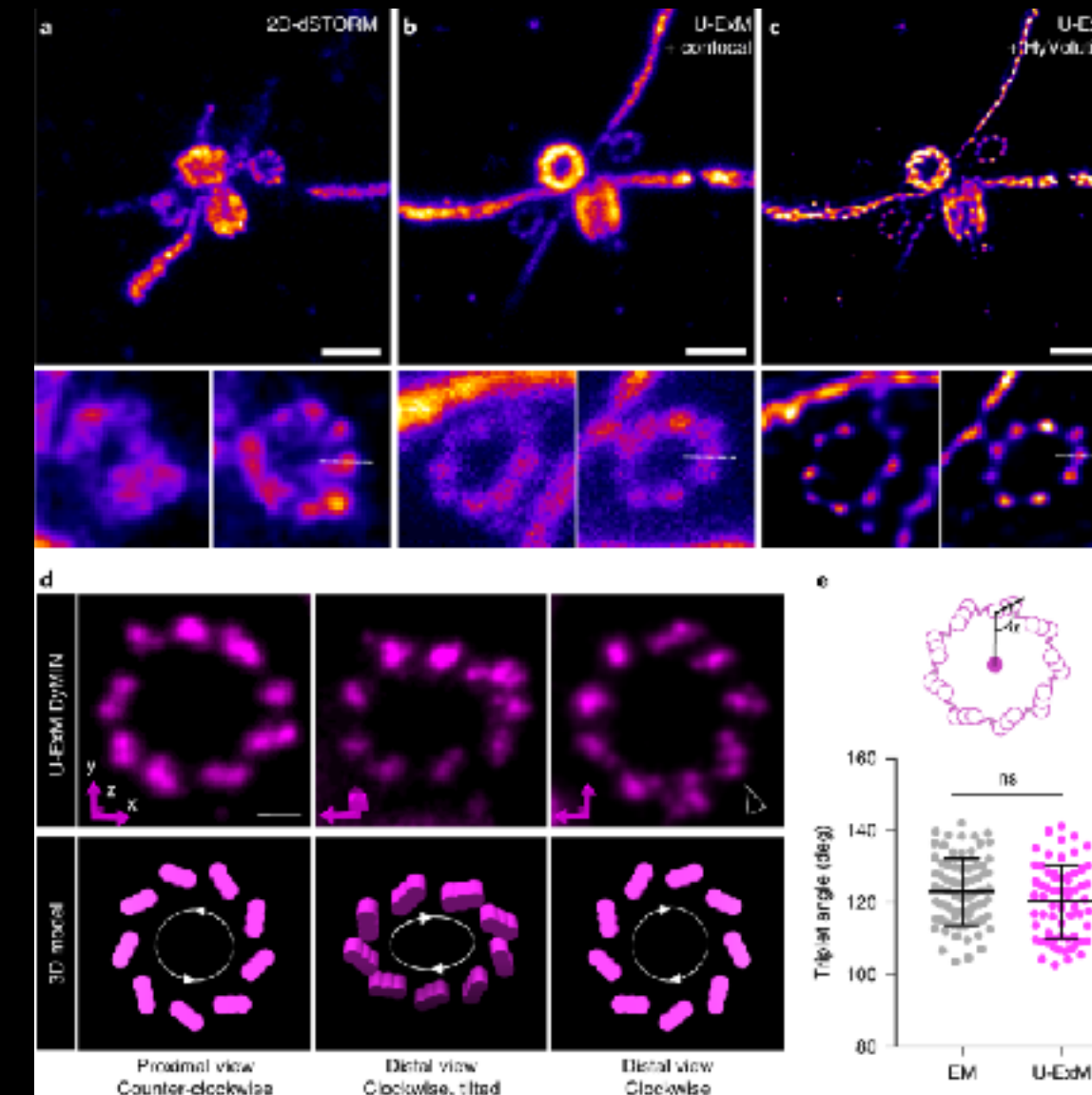
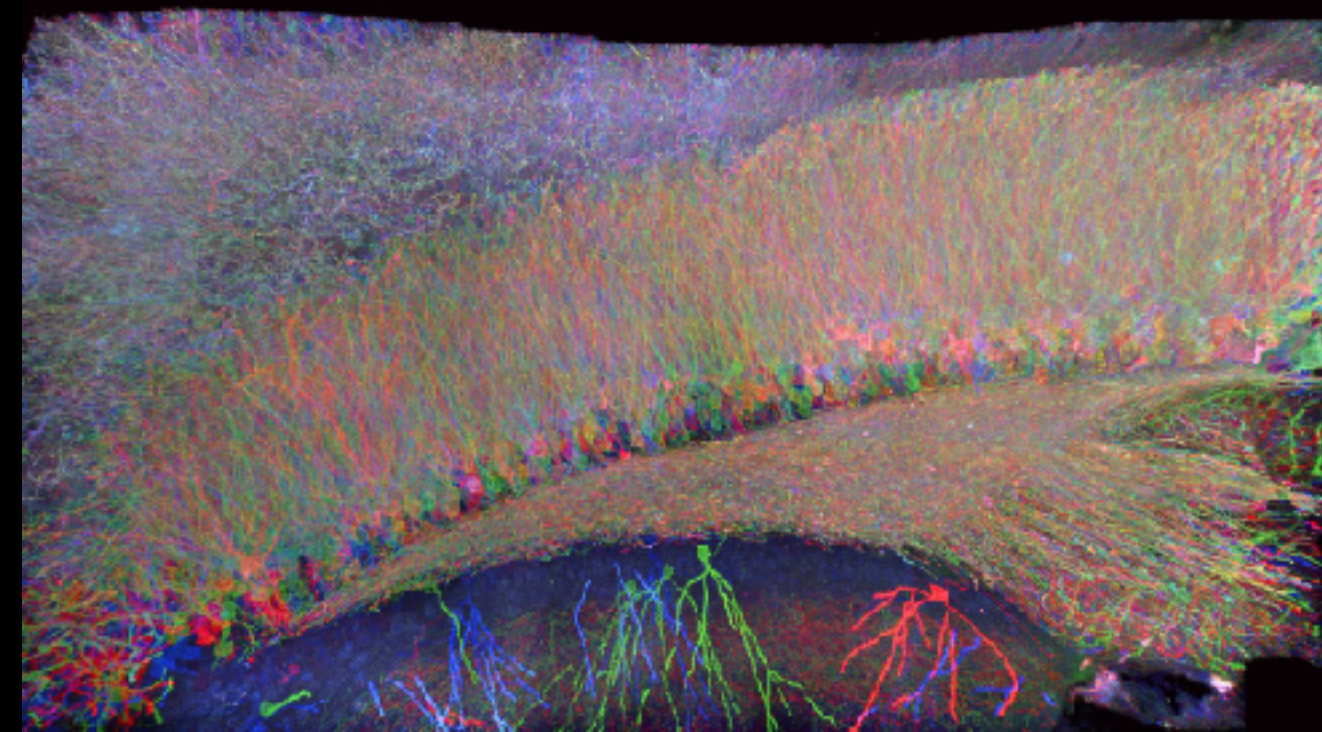
- **#1 Methods to Use**
- **#2 Theories to Reference**
- **#3 Visions to Inspire**

3 ways to impact the world: #1 Methods

Expansion Microscopy (ExM) (2015)

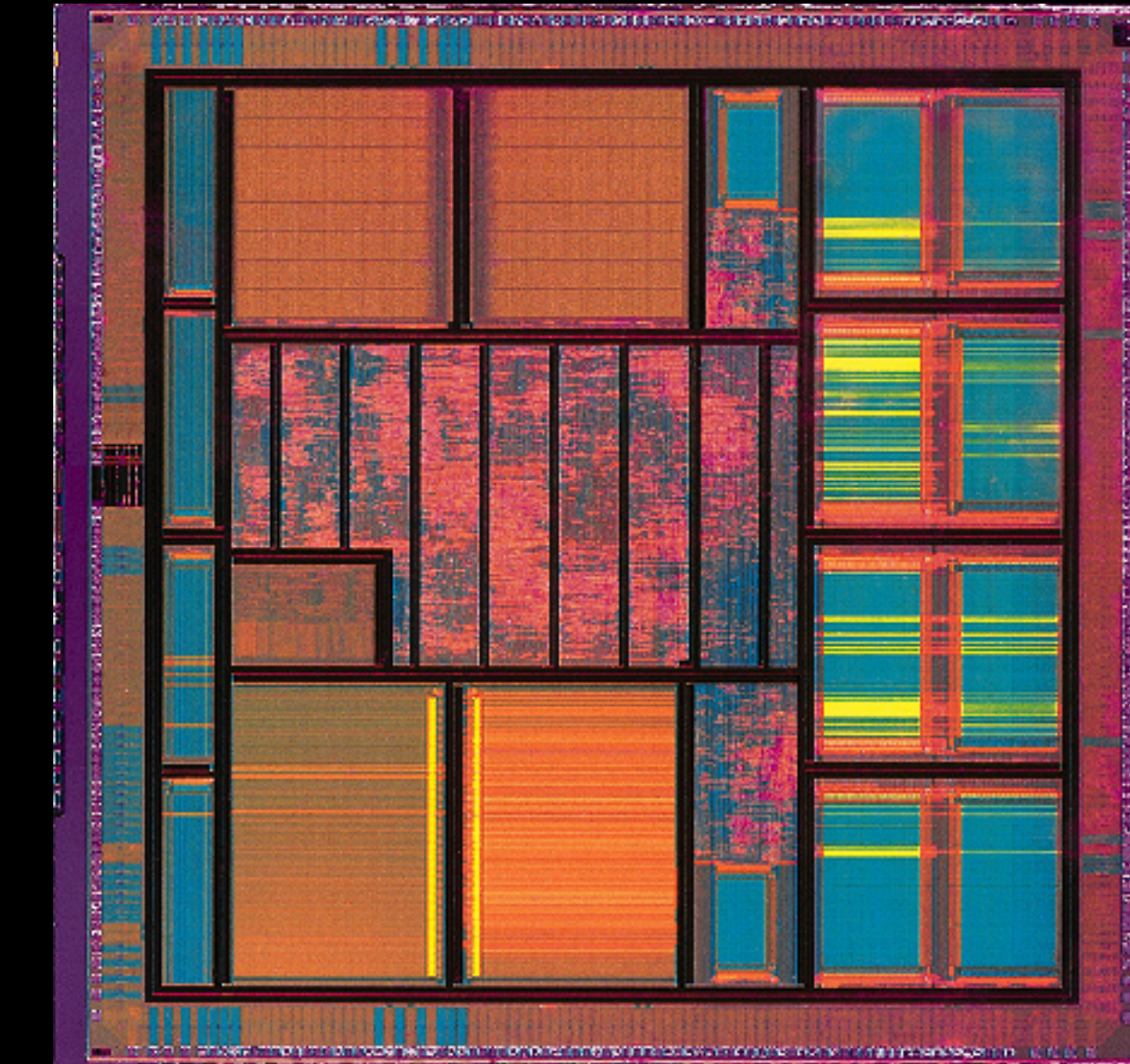
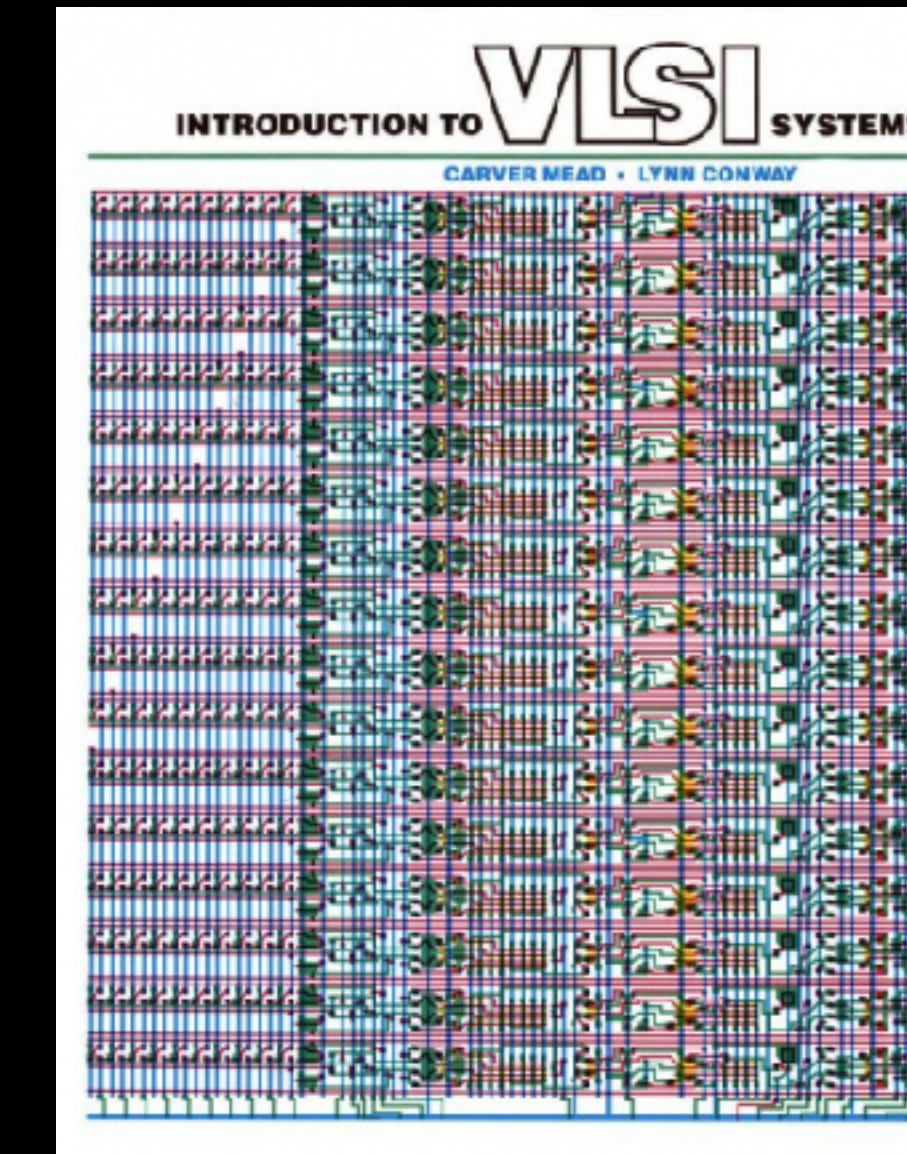
Ed Boyden
March 7

Expansion microscopy (ExM), in which biological specimens are physically swollen so that they can be imaged with nanoscale precision on ordinary microscopes, turns 10 years old! It has been used in over 700 experimental papers and preprints to date, and is being practiced by perhaps thousands of research groups all over the world. Nature published a news article for the 10th anniversary of the publication of ExM, highlighting some of the key moments along the way, including u... See more



Expansion microscopy (ExM) by Prof. Ed Boyden and his team at MIT
<https://pmc.ncbi.nlm.nih.gov/articles/PMC4312537/>

Mead-Conway VLSI chip design (late 1970's)



Mead-Conway VLSI chip design revolution
https://en.wikipedia.org/wiki/Mead%E2%80%93Conway_VLSI_chip_design_revolution

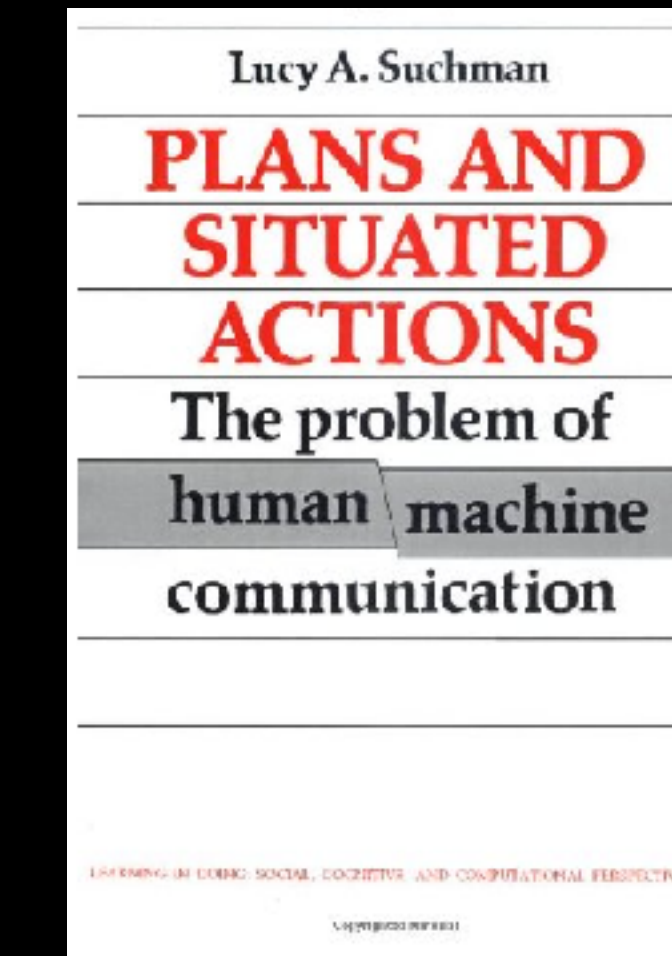
3 ways to impact the world: #2 Theories

Situated Action, Lucy Suchman (1987)

Core Idea: Human action is situated in context and cannot be fully understood via abstract plans or scripts.

Impact: Critical of overly formalized models; sparked ethnographic and practice-based HCI approaches.

Book: Plans and Situated Actions

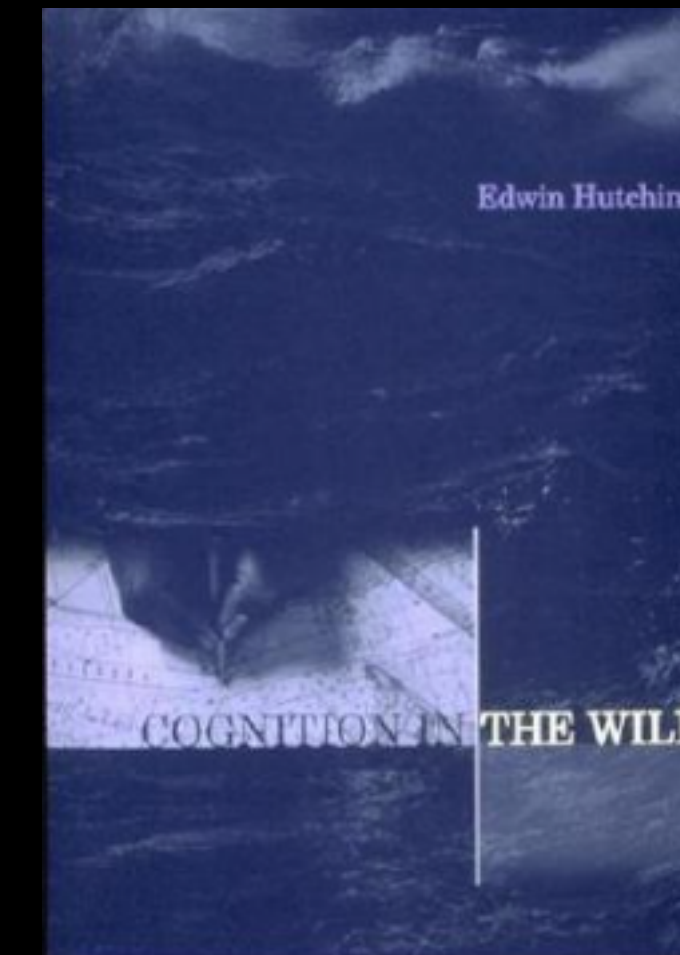


Distributed Cognition (DCog): Edwin Hutchins (1995)

Cognition is not confined to the individual but is distributed across people, tools, and environments.

https://en.wikipedia.org/wiki/Distributed_cognition

Book: Cognition in the Wild: <https://mitpress.mit.edu/9780262581462/cognition-in-the-wild/>

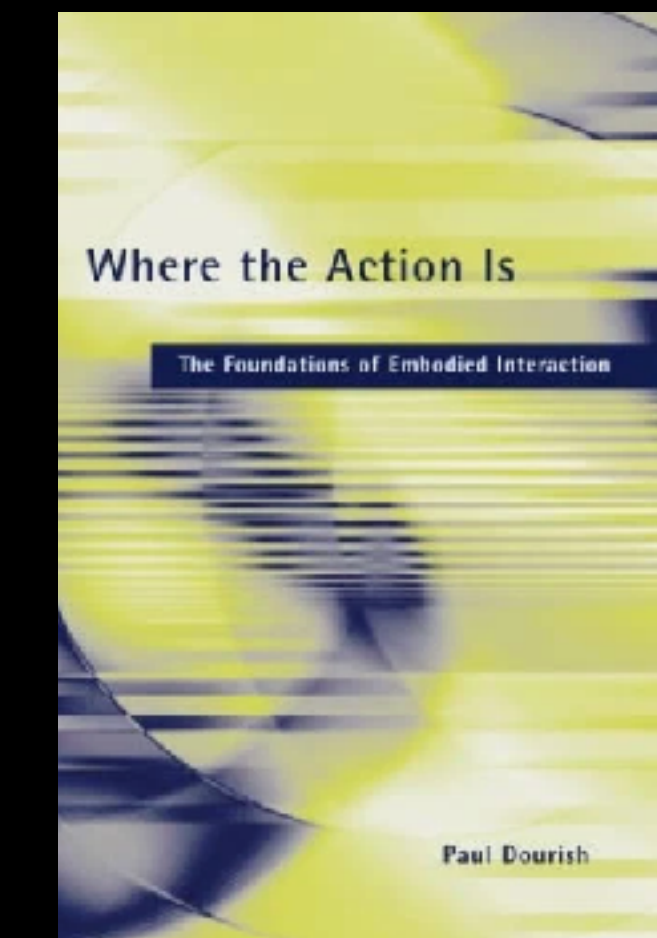


Phenomenology / Embodied Interaction: Paul Dourish (2001)

Emphasizes users' lived, bodily experience; how technology is used in context and interpreted through human experience.

Impact: Influenced tangible, ubiquitous, and affective computing.

Book: Where the Action Is. <https://mitpress.mit.edu/9780262541787/where-the-action-is/>



3 ways to impact the world: #1 Visions

The Ultimate Display - Ivan Sutherland (1964)

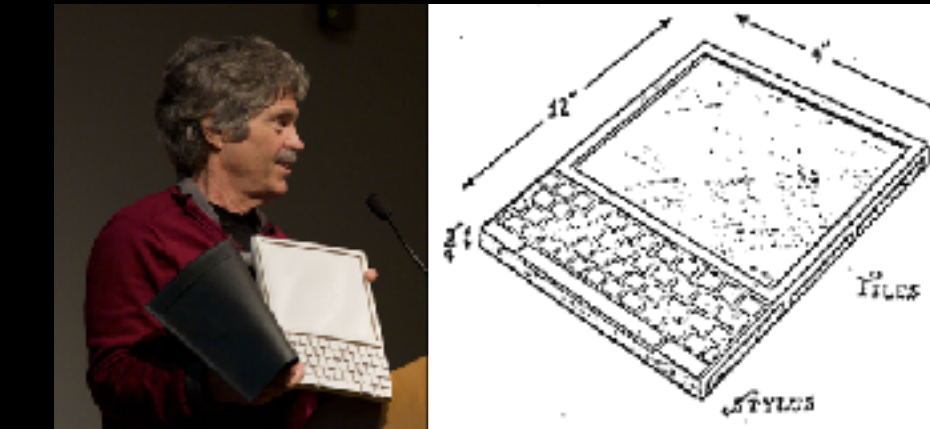
https://en.wikipedia.org/wiki/Ivan_Sutherland



The Dynabook Vision - Alan Kay (1972)

A personal, portable computer designed for creativity, learning, and exploration—especially for children.

<https://en.wikipedia.org/wiki/Dynabook>



Ubiquitous Computing - Mark Weiser (1991)

https://en.wikipedia.org/wiki/Ubiquitous_computing

The Computer for the 21st Century: <https://www.scientificamerican.com/article/the-computer-for-the-21st-century/>

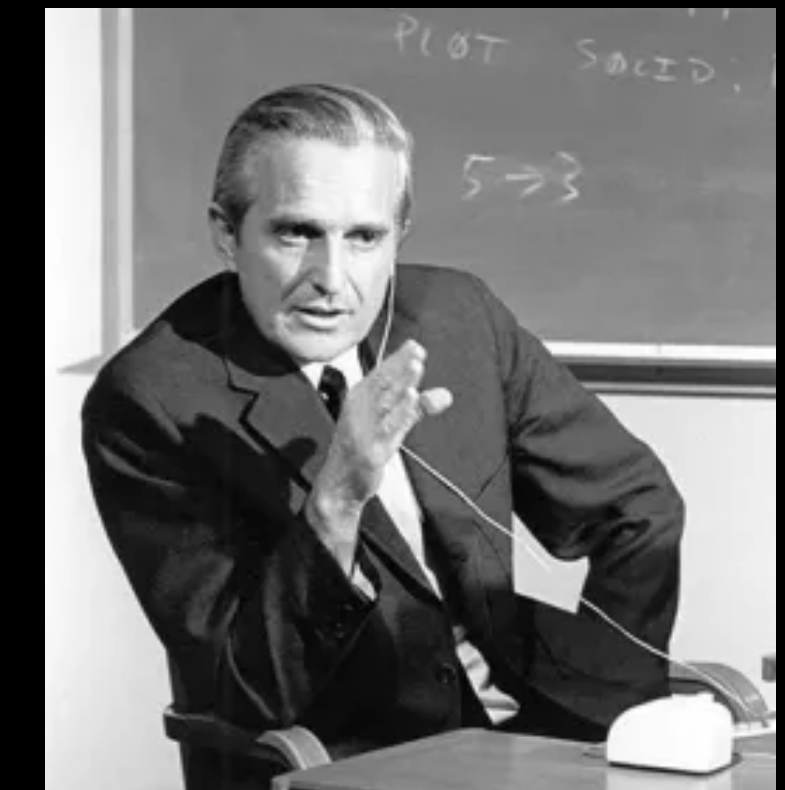
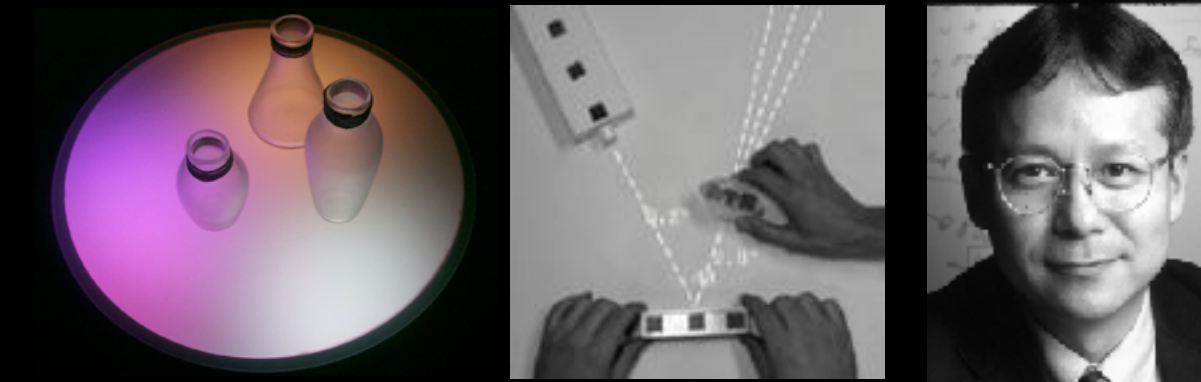


Collective Intelligence - Doug Engelbart (1995)

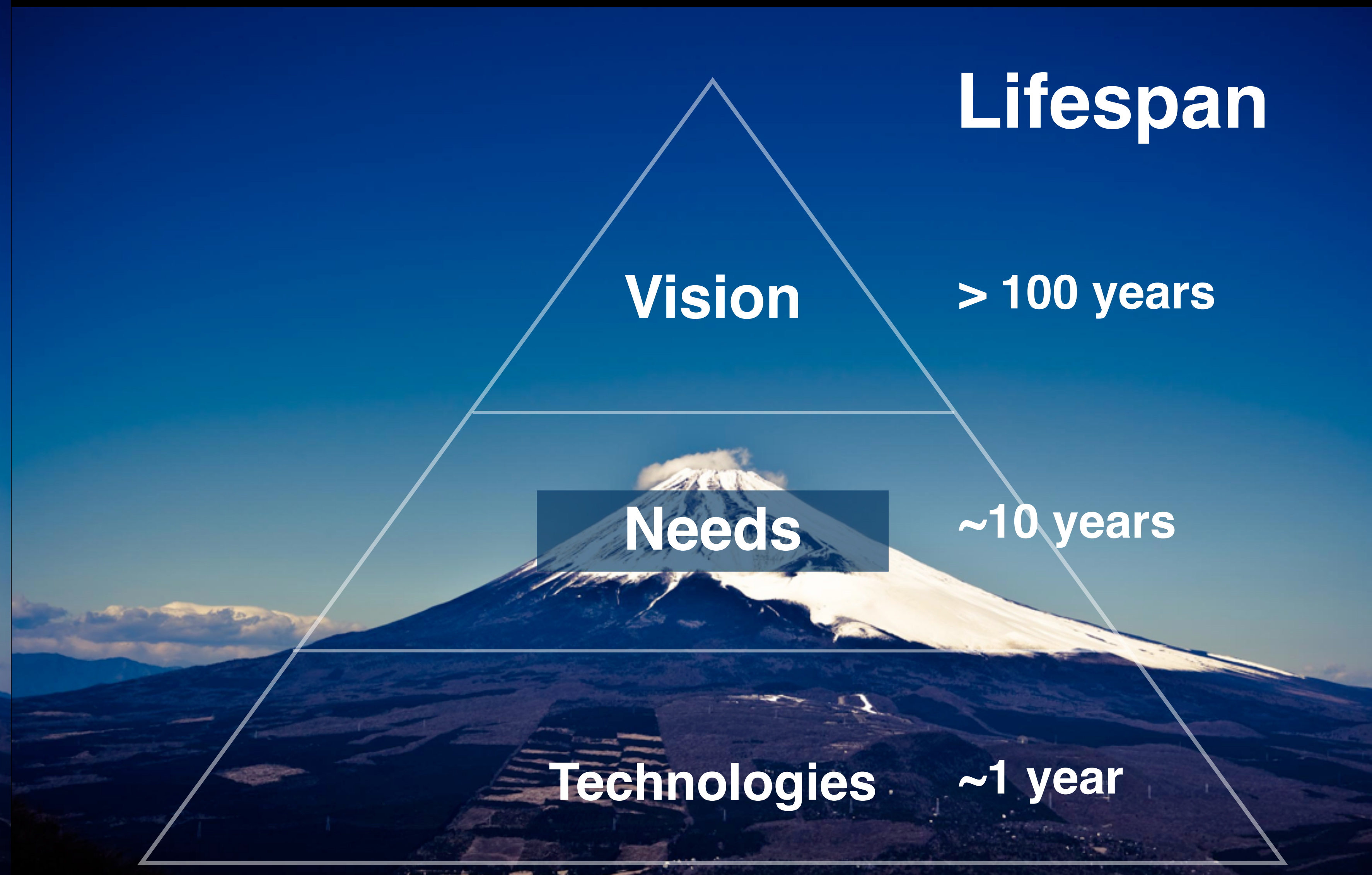
https://en.wikipedia.org/wiki/Douglas_Engelbart

Tangible Bits - Hiroshi Ishii (1997)

CHI '97 paper: Tangible Bits: <https://dougengelbart.org/content/view/171/#0>



vision



It is futile to compete over the number of papers published or citations amassed. What truly matters is the originality of your ideas and their potential to inspire the community.

**Success does not reside in the paper itself, but in how it resonates—
how each reader receives it, builds upon it, and carries its ideas forward.**

**A paper is like a stone cast from the shore:
a strong stone sends ripples across the water's surface,
ripples that grow into waves and travel far across the ocean.
That is true impact.**

**Hiroshi Ishii
April 2025**

INVENT & INSPIRE



Be Artistic & Analytic
Be Poetic & Pragmatic



future





Life has a set end point

But the future is never-ending



**Technology soon
becomes obsolete**

But true vision is ever-lasting



A wide-angle photograph of a night sky. The Milky Way galaxy is visible as a dense band of stars stretching across the upper half of the frame. A bright shooting star streaks across the sky from the top left towards the center. Below the sky, the dark silhouettes of mountains and a body of water are visible. The overall scene is dark and atmospheric.

How do you want to be remembered?

Life has an endpoint, but the future is never-ending.
Technology becomes obsolete, but Vision is ever-lasting.
What legacy do you wish to leave for those living in 2200?

Hiroshi Ishii

Thanks!



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