

Mobile Computing

Welcome!

This session, we discuss the developments and implications of portable media, both from a technical and from a cognitive perspective. How did computers manage to shrink to our pockets? What was the hope in terms of learning and development?

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Plan for the day

- Personal dynamic media
- Mobile computing
- Augmented spaces
- Final project
- React interactivity

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- *Personal Dynamic Media*, by Alan Kay and Adele Goldberg, 1977.

What are they describing?

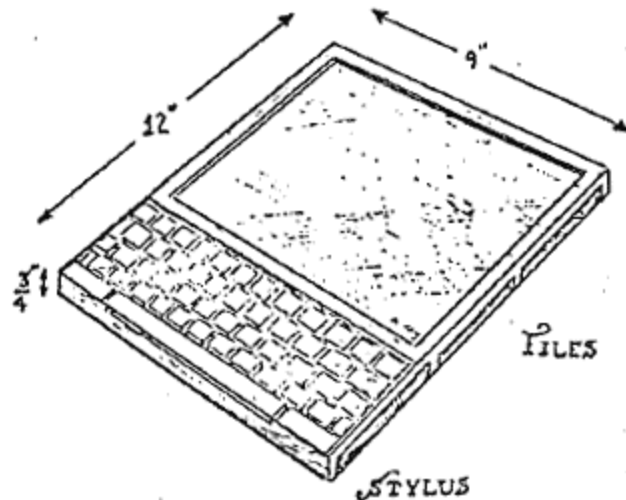
—

Personal dynamic media

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when are phones a "dynamic medium for creative thought"? when are they not?

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Alan Kay's dynabook was an attempt at combining technology and pedagogy

it was made at xerox park

—

Understanding something means having an accurate **mental model**.

Mental models are **coherent systems of parts and relations**.

mental models are a dynamic, structured representation formed in memory as a result of using personal knowledge and environment cues, which help interpret, explain, and act on a target system

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A dynamic medium is about the simulation of activities and concepts, to support the creation a mental model.

There is a difference between the domain represented (**what**), and the representation (**how**).

external world

interpreted world

expected world

The external world is the world that exists, the world that we start from.

The interpreted world is how we make sense of that world through pre-existing cultural knowledge, or through contextual cues.

The expected world is the world that we would like to manifest through our actions (or lack thereof). It is the result of our intention as enabled by affordances; how we change the world.

tools can have an influence on translating the external into the interpreted

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Epistemic interactions

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some interactions developed in smalltalk can be called **epistemic actions**:

- mark
- peek
- save
- compare
- orient
- change
- ...

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Mark

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Changing appearance to note an important part.

hypothesis

medium

highlight essays

—

Peek

—

Revealing only part of related content

wikipedia

gvern

—

Save

Export to a separate document

zotero

pinterest

—

Compare

Split the document in related sub-documents

driftbacks

digital violence

—

Orient

Locate the visitor in a larger document

growing regions

aesthetics of source code

—

Vary

Change a value within a given range

tangled

bicycle

a* pathfinding

—

Mobile computing

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First step was **minimizing**, with the shrinking of transistors, batteries and antennas (2G, 3G, 4G, etc.).



An early Palm Pilot, a Personal Device Assistant

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Second step was **intefacing**, with the development of hardware and software interfaces (natural gestures for navigation).

Apps became the default way of interacting with information

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Computing in space

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How does having a connected phone change how we relate to our surroundings?

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- **upload:** they send out information from a given location, from which action can be deduced
- **download:** they get information about a given location, from which action can be taken

moveable type - ben rubin and mark hansen

a data space is a set of correlated data points, constituting a coherent whole.

-> insert data into everyday life

-> extract data from everyday life

The flows of data go in two directions: - extraction (surveillance) - insertion (augmentation)

Two different ways of doing augmentation: creating new data (sound walks) or highlighting existing data (jewish museum).

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Base requirements are there (speed, resolution, portability, connectivity). The next steps are **context** and **content**.

context-awareness can be **personal**, **chronological** or **geographical**.

a.k.a where/when/who is the user, and what do they want to do?

*human memory is **constructive** memory: memories are created as they are accessed. computer memory is **static** memory: memories are exactly the same as they were first written.*

yesterscape

*Constructive memory means that we actively create memories as we recall them. While a computer, for now, is only accessing memory in a location, humans combine them to create new ones. Which means that our memories, obviously, aren't "objective", they are tailored not only to our experiences, but to how we recall these experiences. The consequence of that is that, if computers start to have constructive memories, they would start to be **personalized**.*

constructive memories means taking into account the individual, and its current needs. Just as we are constituted as a series of events, is it possible to apprehend computers as learning as well? To some extent, this is what AI is doing: developing recommendation algorithms happens through the recurring process of learning, presenting, learning again.



The Morris Column is an old kind of smart media, with shared information

subsuming physical reality with digital realities prioritizes the individual over the collective.

Final Project

A website documenting a culture or a knowledge (or the intertwining of both)!

- The culture of Tijuana
 - The culture of Berghain
 - Chat technologies
 - Technoculture
 - Debussy Music
 - Album coverz
 - Astrology Comparison
 - Immersion in Zelda
-

Timeline:

- next week, present ideas
 - in two weeks, present organization and first-pass on design
 - after spring break, development
-

React

Recap:

- What is JSON?
 - What is a loop?
-

```
{
  "all_stories": [
    {
      "title": "once upon a time",
      "summary": "this is a story that starts very
traditionally"
    },
    {
      "title": "antigone",
      "summary": "choose between what you think is moral and
what is legal"
    }
  ]
}
```

```
stories.map(function(story) {
  return(
    {story.title}
  )
})
```

Interactivity!

In HTML, we need to update variables, and then update the actual document

(e.g. `isVisible = true` and `document.getElementById("...").style.display = "none"`).

In React, we just need to update the variable! But for this, we need `useState`.

```
const [isVisible, setIsVisible] = useState(false)
```

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Demo:

How to **filter** film reviews by year.

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Exercise:

Make a button that toggles the visibility of film reviews by whether or not they have a trailer link.

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Homework:

- Add an interactivity component to your reading response by leveraging `useState`
- Add a new page where you describe two ideas for a final project.

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Appendix