

Introduction to HCI (4190.426)

1. History

Looking back on seminal research in the history of HCI, name people or systems that demonstrated the following salient characteristics, and also give the approximate year it was announced (± 10 years).

- a. Who envisioned linked information trail of all human knowledge (Memex)?
- b. Who created interactive drawing program with lightpen?
- c. Who created interactive data management system with first mouse?
- d. What system was the first that created windowed GUI with mouse and raster display?

2. HIP

- a. Name the three processing units in the HIP model defined by Card, Moran and Newell.
- b. Explain what the Bloch's Law is. Among the three processing units in the HIP model, which processing unit is related to the law?

3. Design Principles

(10 pts) For each of the five design principles below, define and give a clear example of each. Describe example briefly and sketch if necessary.

- a. Affordances
- b. Conceptual model
- c. Mapping
- d. Visibility
- e. Feedback

There are three aspects of conceptual models. One of them is the "system image," which results from the physical structure that has been built. What are the remaining two aspects? Using these aspects, explain why usability problems occur.

4. Design process

- a. What are the playful rules for a successful brainstormer? List at least FOUR of them.

5. Answer the following questions regarding selecting visual encodings when we design a vis system.

- 1) Briefly explain the *expressiveness* and *effectiveness* of visual encoding, and then critique the following visualization in terms of the two criteria. Sketch your idea of an improved visualization on the right.

