

# Computer Graphics -History

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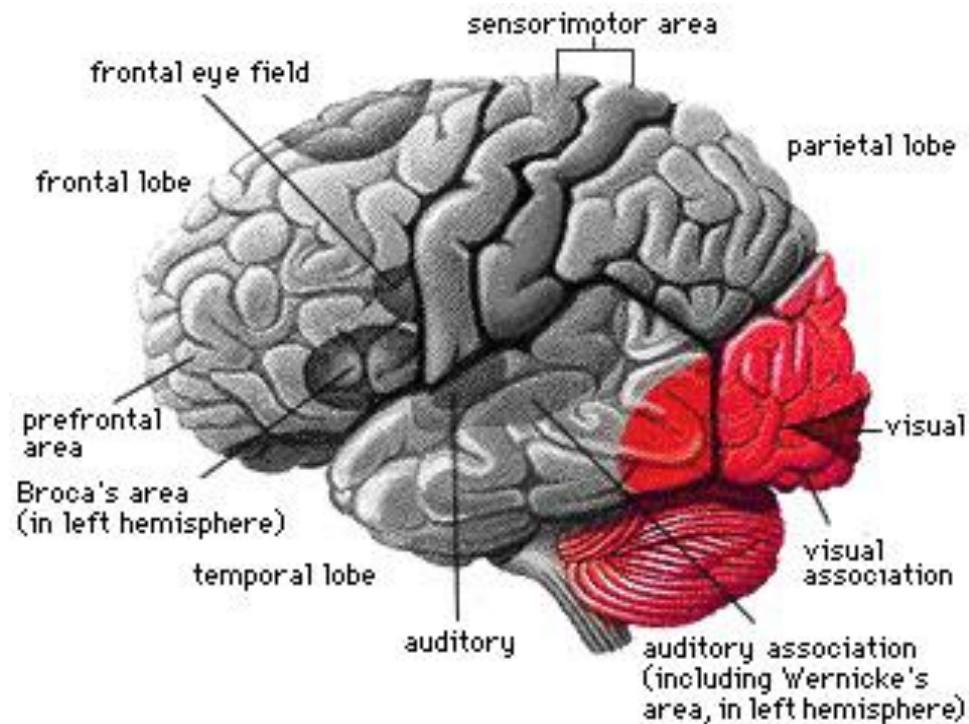
<http://jjcao.github.io/ComputerGraphics/>

# What is computer graphics?

- The use of computers to synthesize and manipulate **visual information**.

# Why visual information?

- About 30% of brain dedicated to visual processing...



- ...eyes are highest-bandwidth port into the head!

Humans are visual creatures!

# History of visual depiction

- Humans have always been visual creatures!

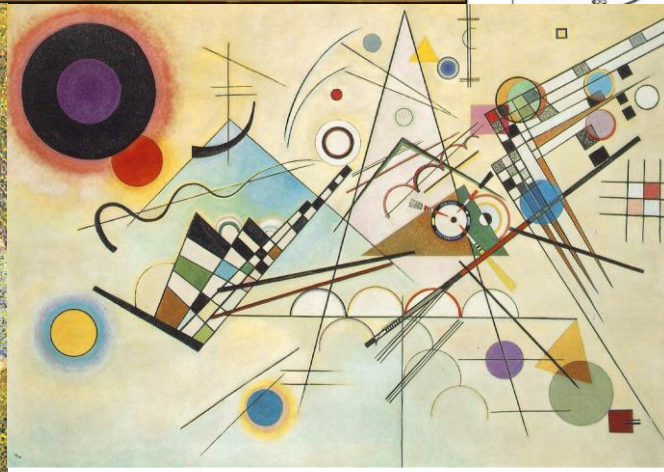
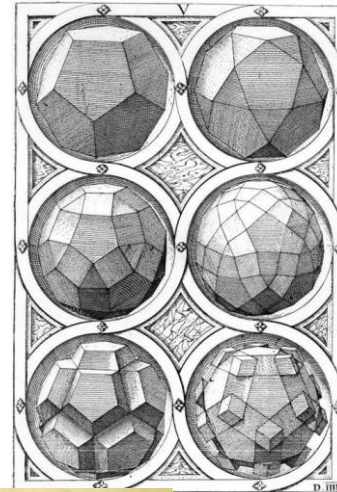
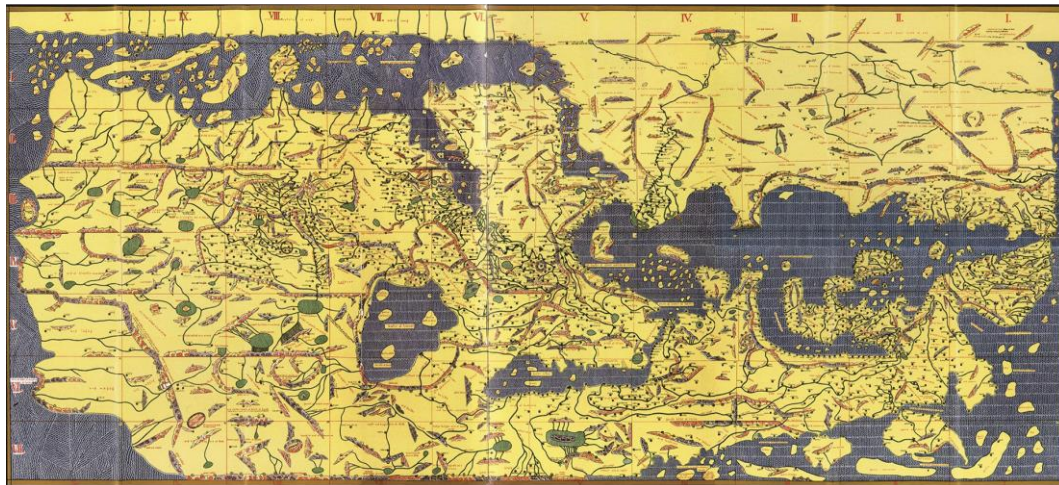


Indonesian cave painting (~38,000 BCE)



# Visual technology: painting / illustration

- Not purely representational: ideas, feelings, data, ...





# Visual technology: carving / sculpture



# Visual technology: photography / imaging

- Processing of visual data no longer happening in the head!



Joseph Niépce, “View from the Window at Le Gras” (1826)



# Visual technology: photography / imaging

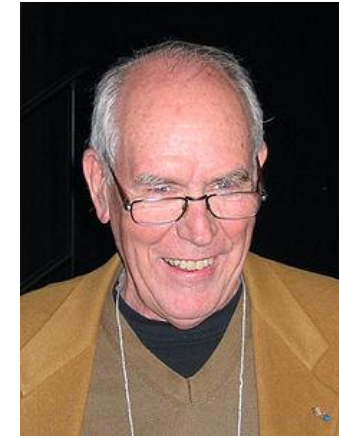


# Visual technology: digital imagery

- Intersection of visual depiction & computation



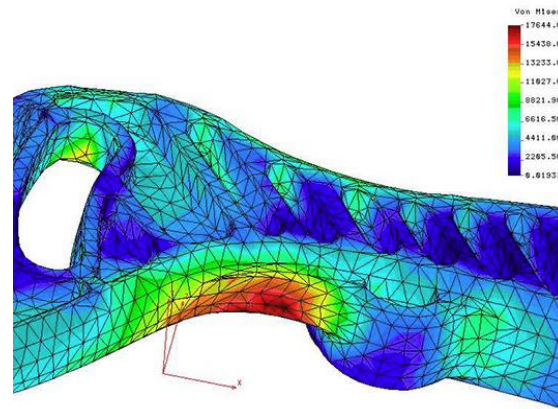
Ivan Sutherland, “Sketchpad” (1963)



- [Turing Award](#)
- [human-computer interaction](#) (HCI)
- a major breakthrough in the development of [computer graphics](#) in general.
  - For example, the graphical user interface (GUI) was derived from the Sketchpad as well as modern **object oriented programming**.
- PhD thesis



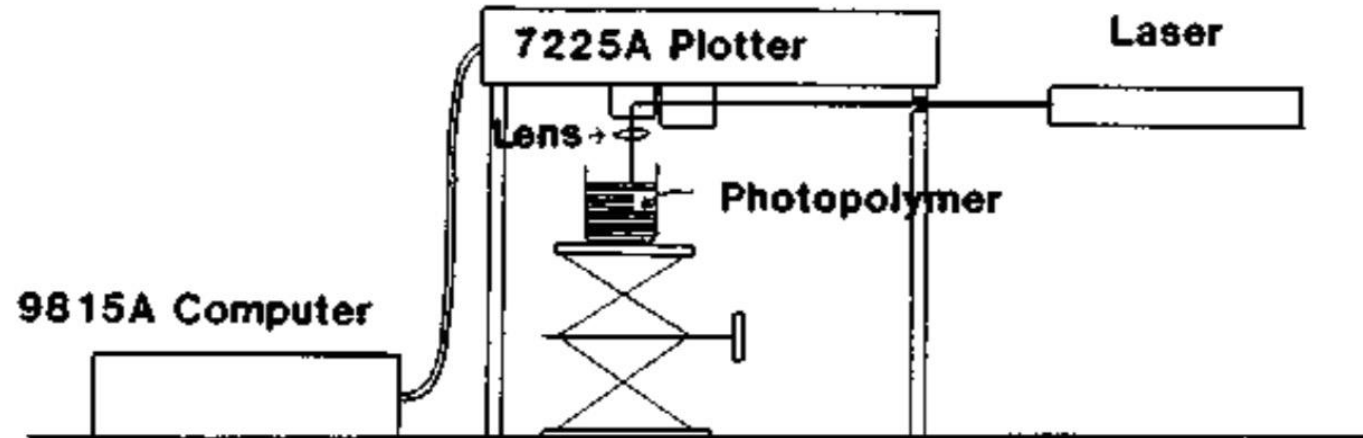
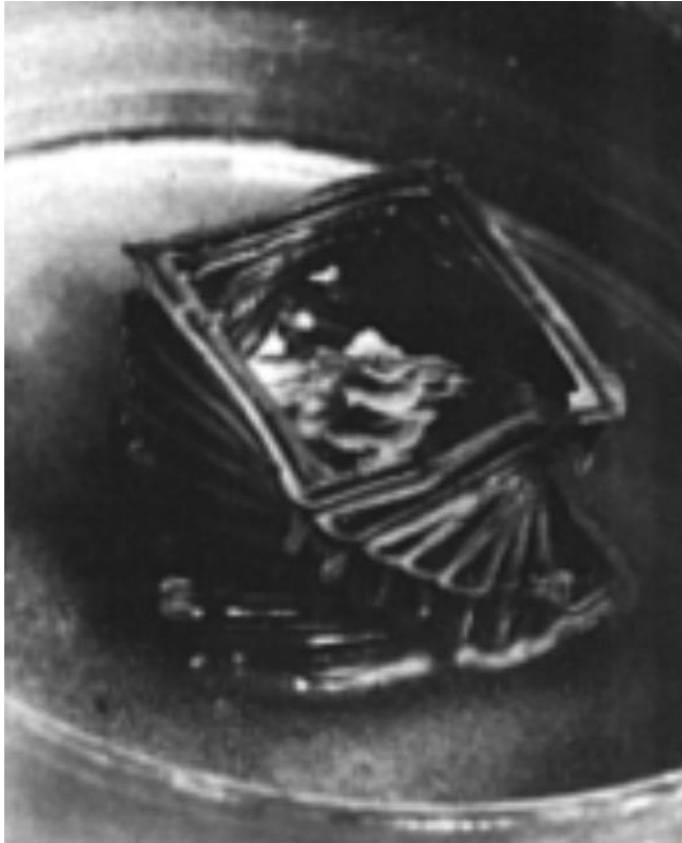
# Visual technology: digital imagery





# Visual technology: 3D fabrication

- Create physical realization of digital shape



A. J. Herbert / 3M (1979)

# Visual technology: 3D fabrication

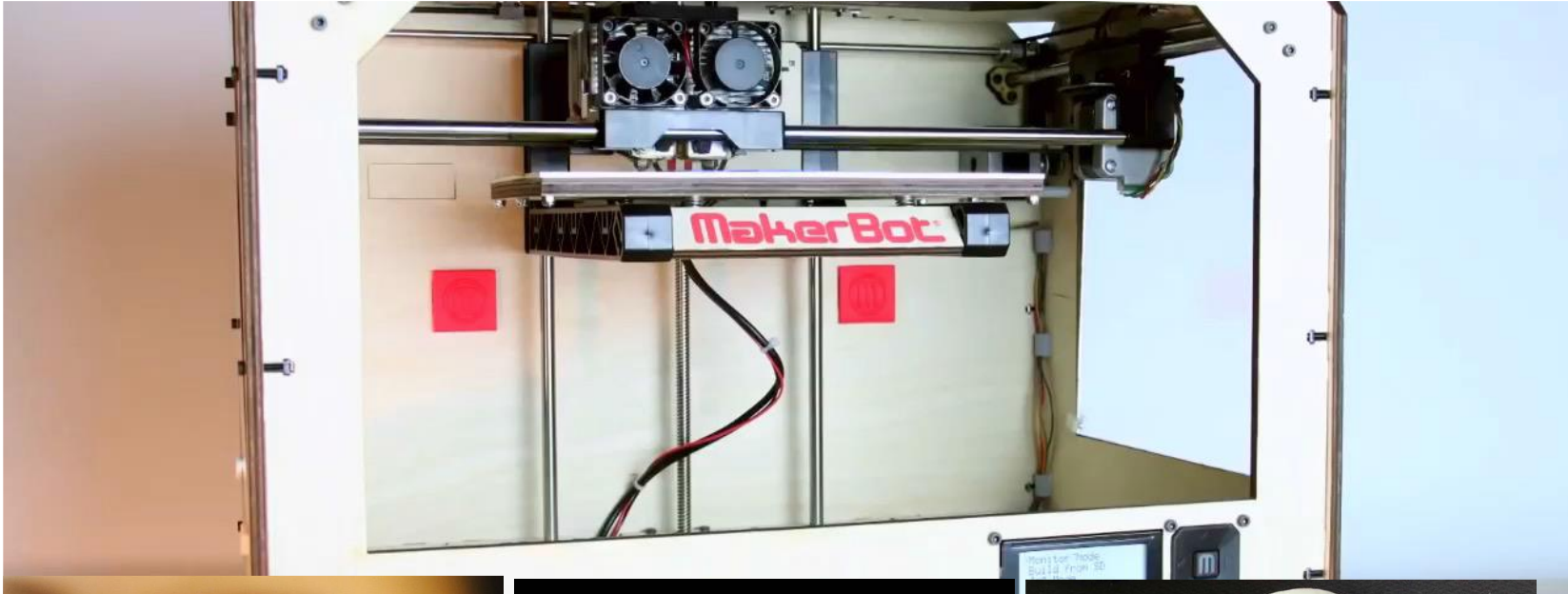
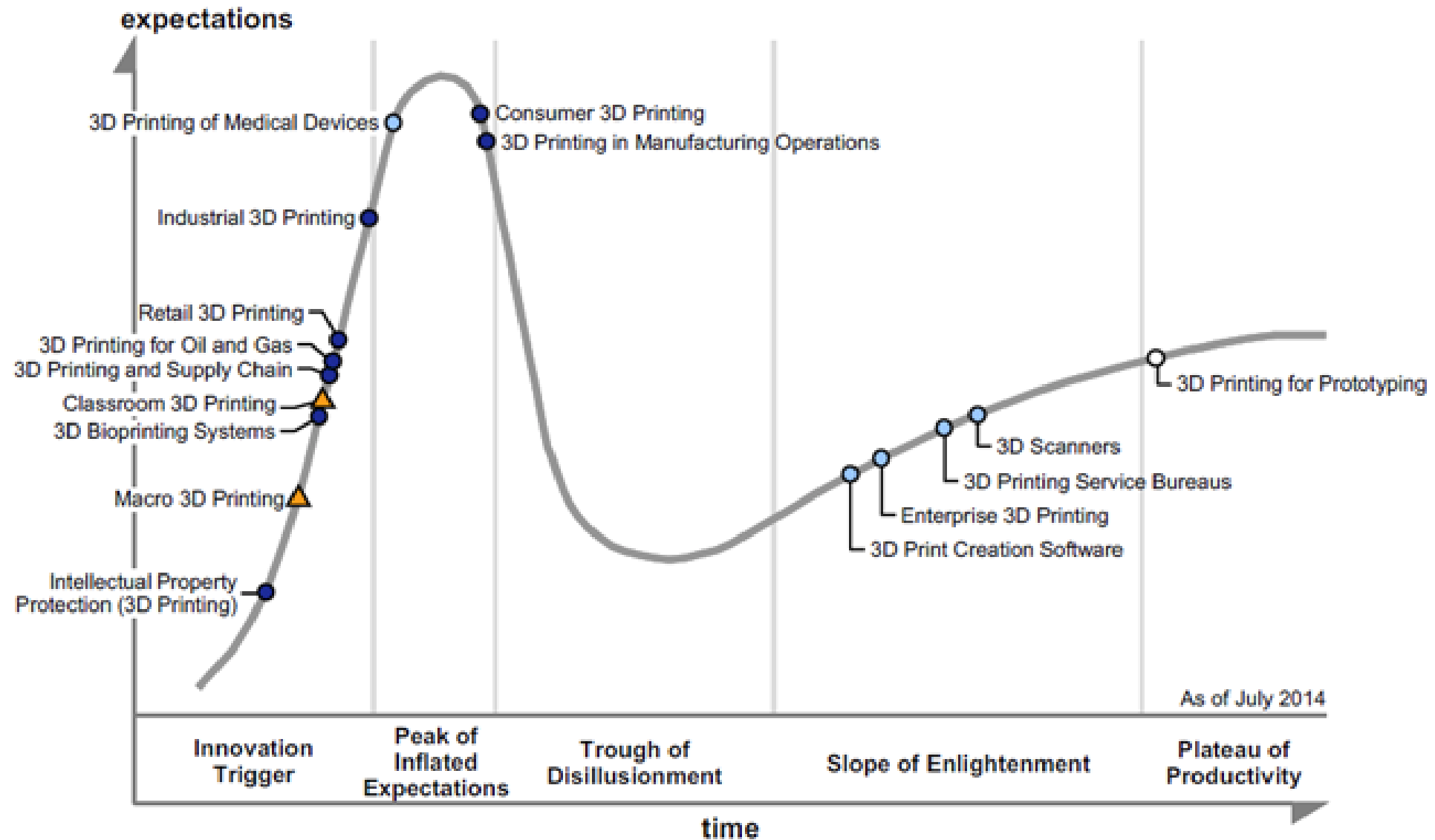


Figure 1. Hype Cycle for 3D Printing, 2014



As of July 2014

Plateau will be reached in:

○ less than 2 years

● 2 to 5 years

● 5 to 10 years

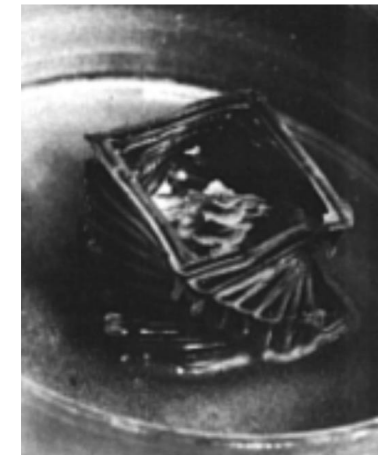
▲ more than 10 years

⊗ obsolete before plateau



# Technologies for visual depiction

- Drawing/painting/illustration (~40,000 BCE)
- Sculpture (~40,000 BCE)
- Photography (~1826)
- Digital Imagery (~1963)
- 3D Fabrication (~1979)



# What is computer graphics?

- The use of computers to synthesize and manipulate **visual information.**
- The use of computers to synthesize and manipulate **sensory information.**



**(sound)**



**(touch)**

Computer graphics is everywhere!