Turing Computer Science II
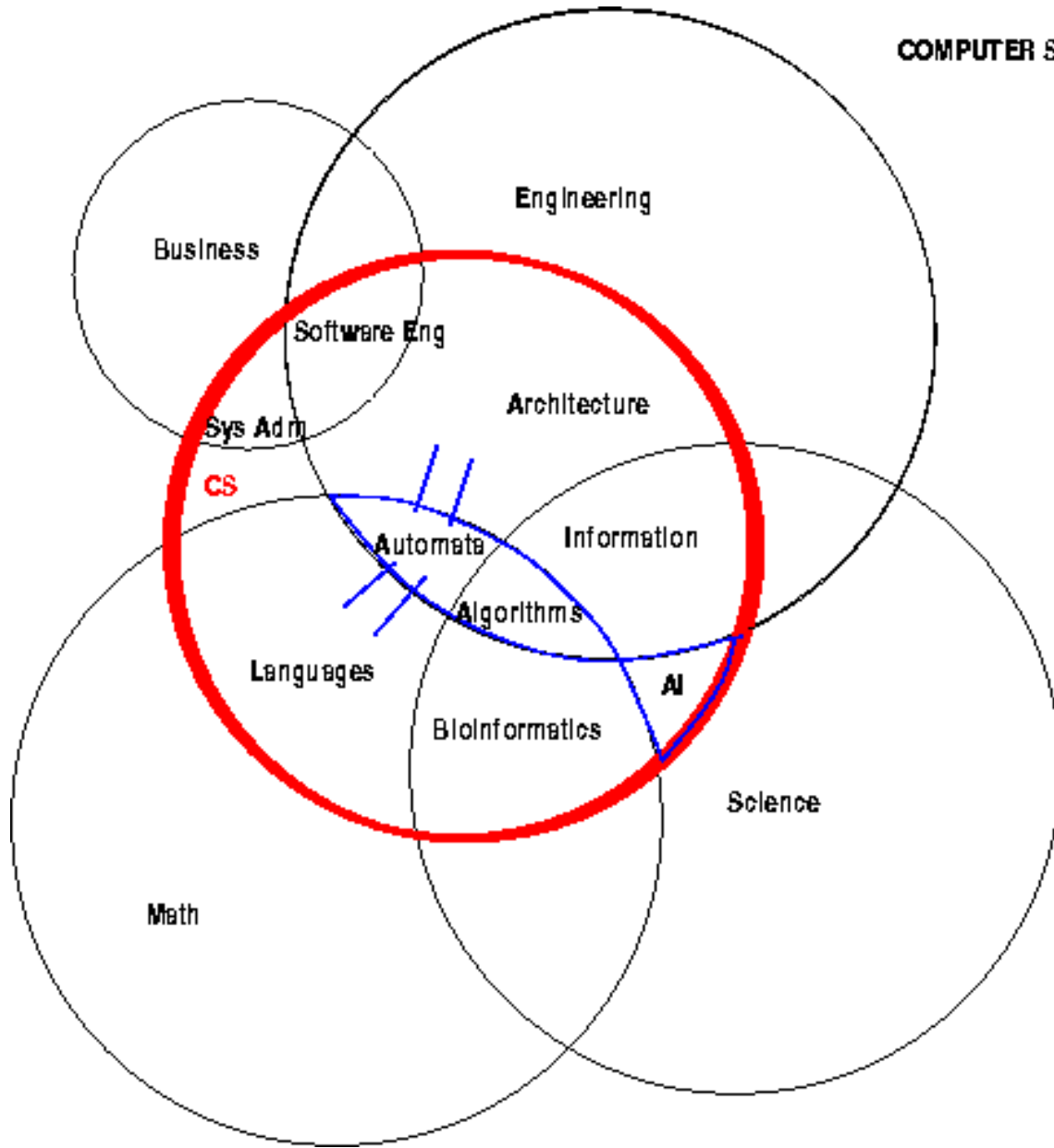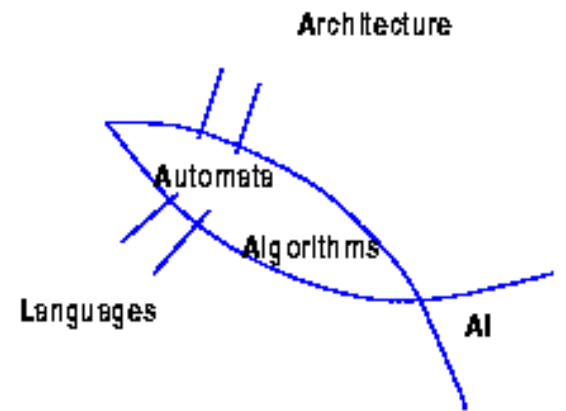
Ernesto Gomez

Keith Evan Schubert
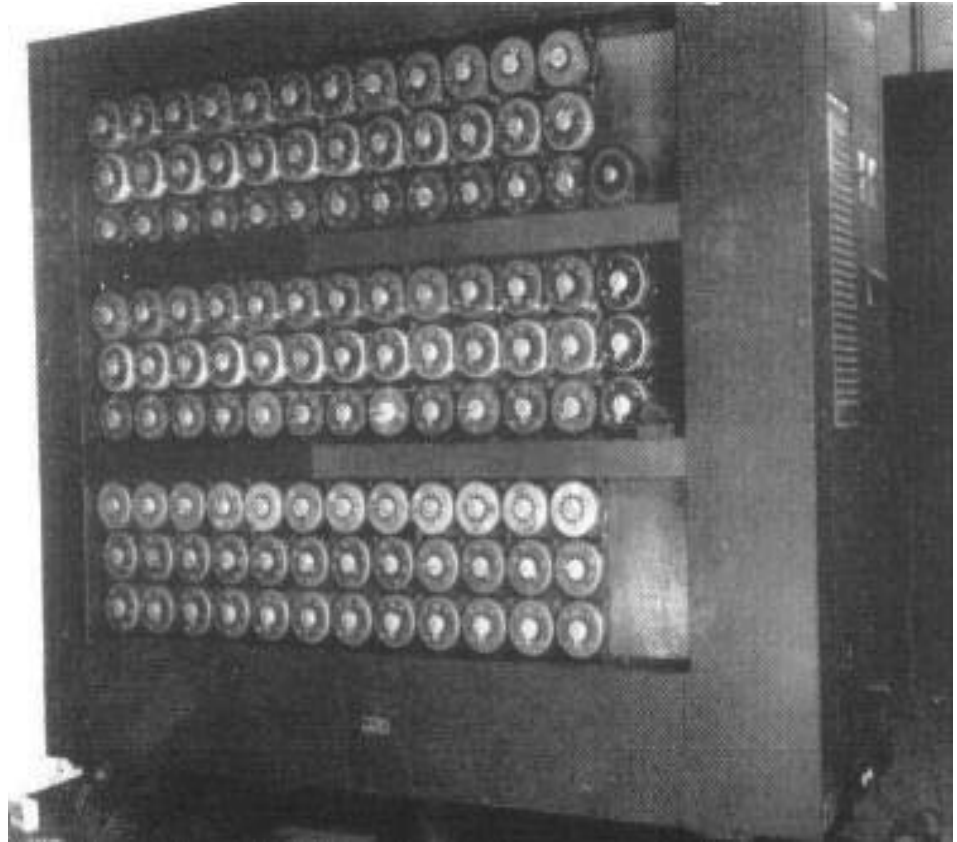
COMPUTER SCIENCE KNOWLEDGE SET

Engineering

Business

Software Eng

Architecture

Sys Adm

CS

Automata

Information

Algorithms

Languages

AI

Bioinformatics

Science

Math

Turing fish

Architecture
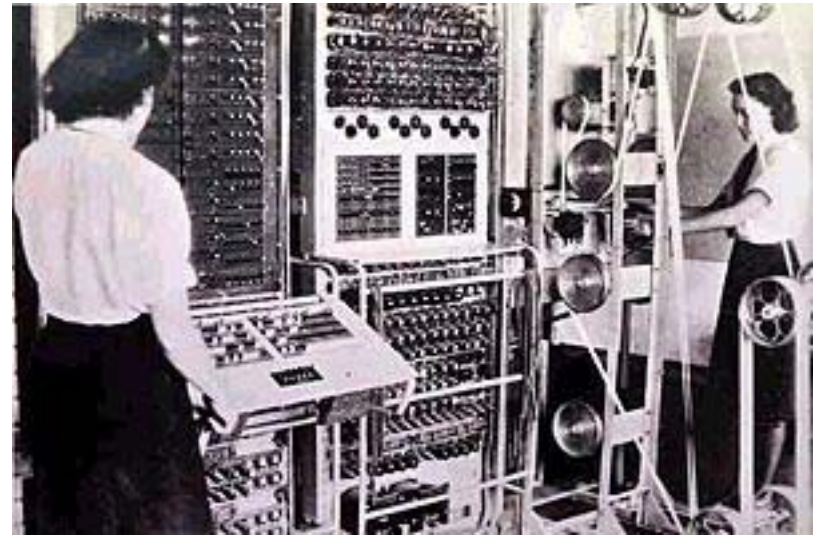
Automata

Algorithms

Languages

AI

Enigma and the Bombe

Turing, Welchman, and Flowers
(based off work of Marian Adam Rejewski)

Lorenz SZ 40/42 and Colossus

Tommy Flowers with Newman

ACE

- Components
  - Dynamic Storage (500x1000 digits)
  - Temporary Storage (50x32 bits)
  - Input Organ and Output Organ
  - Logical Control
  - Central Arithmetic
  - Floating point numbers (10^{-70} to 10^{86})

ACE Control

- Memory Components
  - Control Data (PC)
  - Control Instruction (IR)
- Function
  - Fetch
  - Decode

ACE Innovations

- Led to
  - Microcontrol
  - RISC
  - Cache
  - Floating Point

AI

- Turing Test
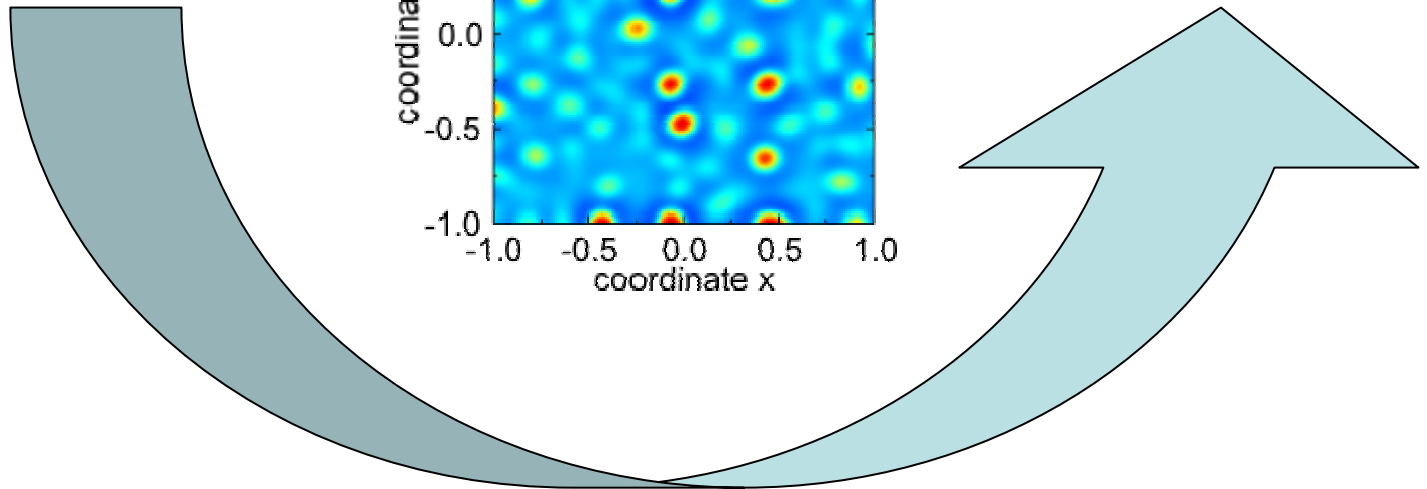- John Searle's Chinese room
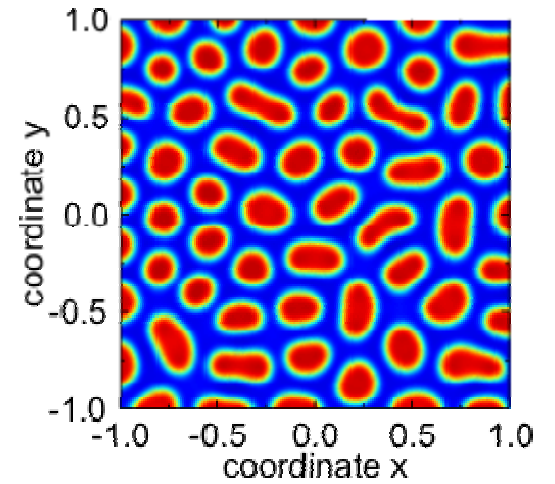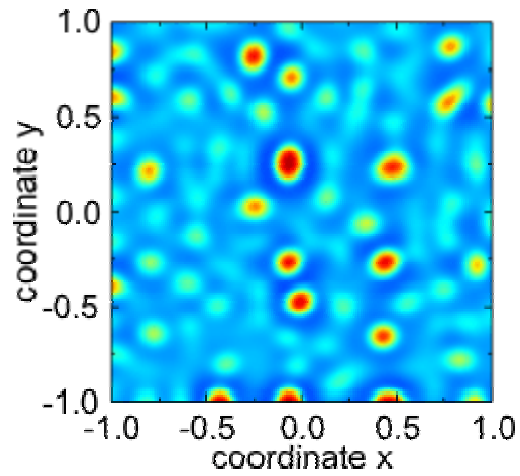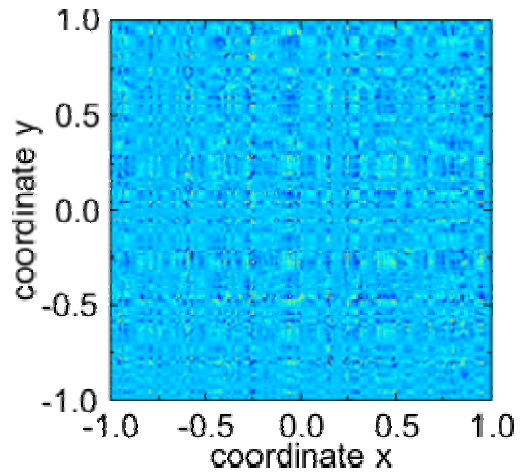   - Ned Block's Blockhead

Biological Patterning

- Physiological and chemical
- Reaction-diffusion mechanism

    $$U_t = DU_{xx} + R(U)$$

- Paper:

    The chemical basis of morphogenesis

Example

June 7, 1954

Dip the apple in the brew
Let the Sleeping Death seep through

-Wicked Witch in

Snow White and 7 Dwarfs