CSC104 fall 2012

Why and how of computing
week 2

Danny Heap

heap@cs.toronto.edu

BA4270 (behind elevators)

http://www.cdf.toronto.edu/~heap/104/F12/

416-978-5899

Text: Picturing Programs

Outline

Pre-modern computer

Notes

gears, pins, and electricity
digital and analog before tubes

data stored in punched cards
manipulated by pins and
electricity last for decades

analog computers model world
using smoothly-varying quantities
such as water

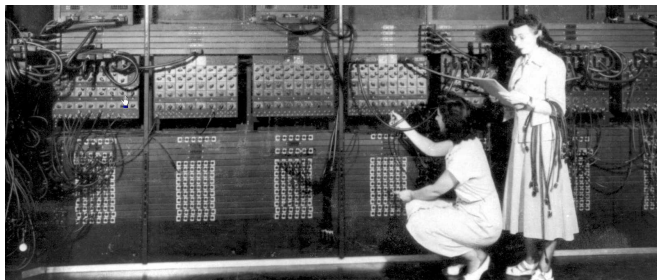# programmable or electronic...
...but not both?

"programmable" (cards) but
not electronic (relays)
the Zuse Z1

electronic but not programmable
dedicated to one calculation
the Atanosoff-Berry

Computer Science
UNIVERSITY OF TORONTO
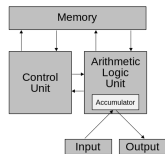
when computers were women
for a while

Eniac's first programmers were women
known for clear-thinking, manual dexterity, and speed
. . . human labour was cheaper than computer cycles
dozens of cubic metres, programmed by connecting pins
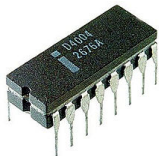
stored programs, faster switches

getting modern

the same memory for data
and programs is now
the typical design

tubes were big, hot, slow
compared to transistors
. . . which just keep shrinking

your (grand)parent's computer
smaller, faster, . . .

perhaps thanks to sputnik
the computing power of eniac
fits in your hand by 1970

mass-produced desktops
landed with a clunk
by 1980s

Notes