Introduction To CPSC 231 And Computer Science

James Tam

<u>Administrative</u>

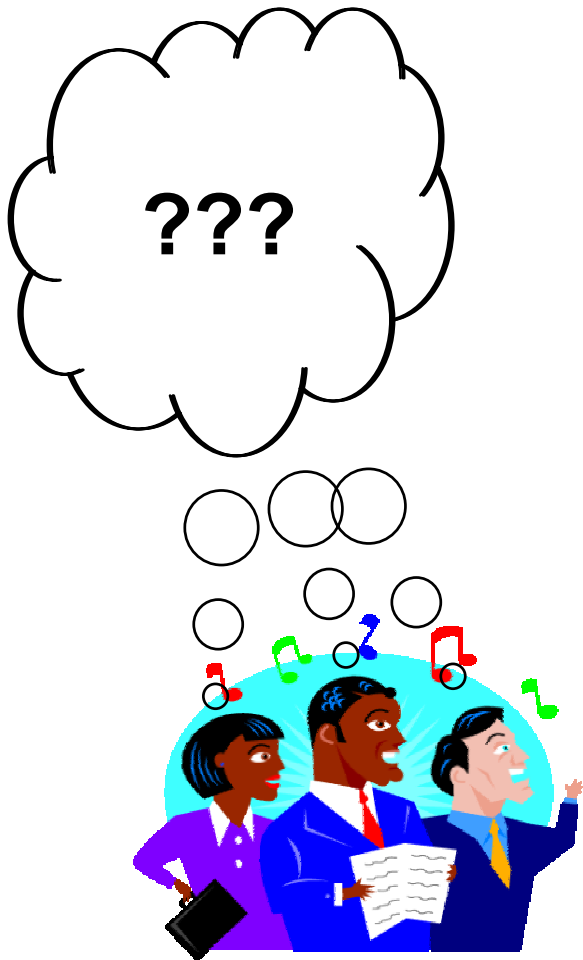## Contact Information

- Office: ICT 707

- Phone: 210-9455

- Email: tamj@cpsc.ucalgary.ca

Office hours

- Office hours: TR 14:00 – 14:50 (right after class)

- Email: (any time)

- Appointment: phone or call

- Drop by for urgent requests (but no guarantee that I will be in!)

Feedback

???

Dilbert © United Features Syndicate

How You Will Be Evaluated

Assignments (30%)

- Assignment 1: Introduction, number systems and logic (*5%*)

- Assignment 2: Algorithms and design (*2%*)

- Assignment 3: Working with simple Pascal programs (*3%*)

- Assignment 4: Number products (*3%*)

- Assignment 5: The Game of Life (*6%*)

- Assignment 6: Personal contacts list, version 1 (*6%*)

- Assignment 7: Personal contacts list, version 2 (*5%*)

Exams (70%)

- Midterm exam (25%)

- Final exam (45%)

Course Resources

Course website: http://pages.cpsc.ucalgary.ca/~tamj/2002/231

Course textbooks:

- Pascal Programming & Problem Solving, 4th Edition, Leestma/Nyhoff (Prentice Hall)

- A Practical Guide to Solaris, Sobell (Addison-Wesley)

Note: Neither the course web site nor the text books are meant as a substitute for regular attendance to lecture and lab. They are provided to support and supplement the class.

Introduction To Computer Science
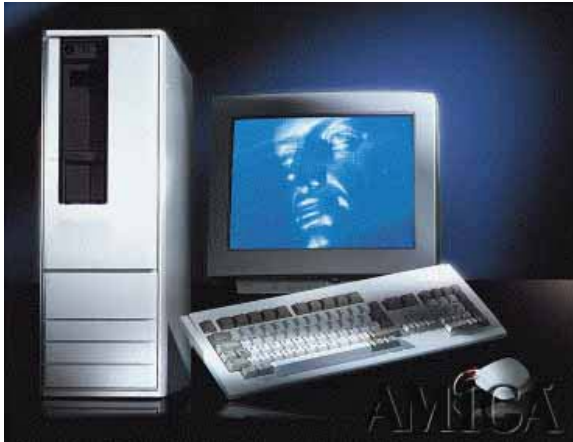
What is Computer Science?

Some Areas Of Study[1]

•Human-Computer Interaction

•Graphics

•Information Visualization

•Databases

•Theory

•Simulations

•Artificial Intelligence

•Computer Vision

•Software Engineering

•Games programming

1 This list provides only a brief listing and is far from comprehensive
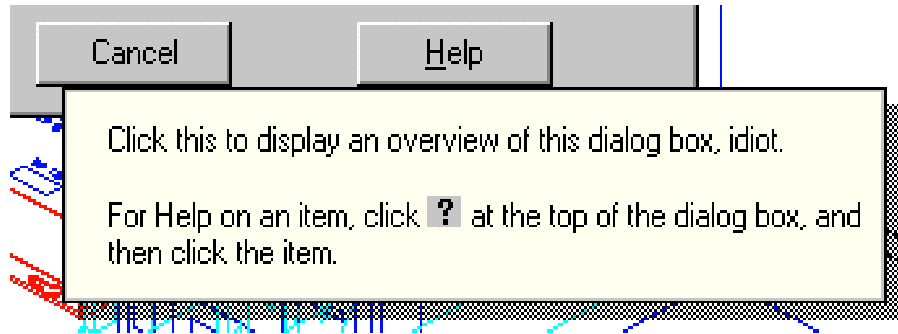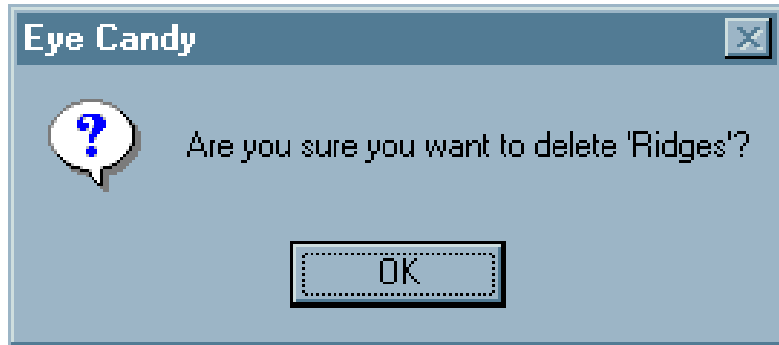
Human-Computer Interaction

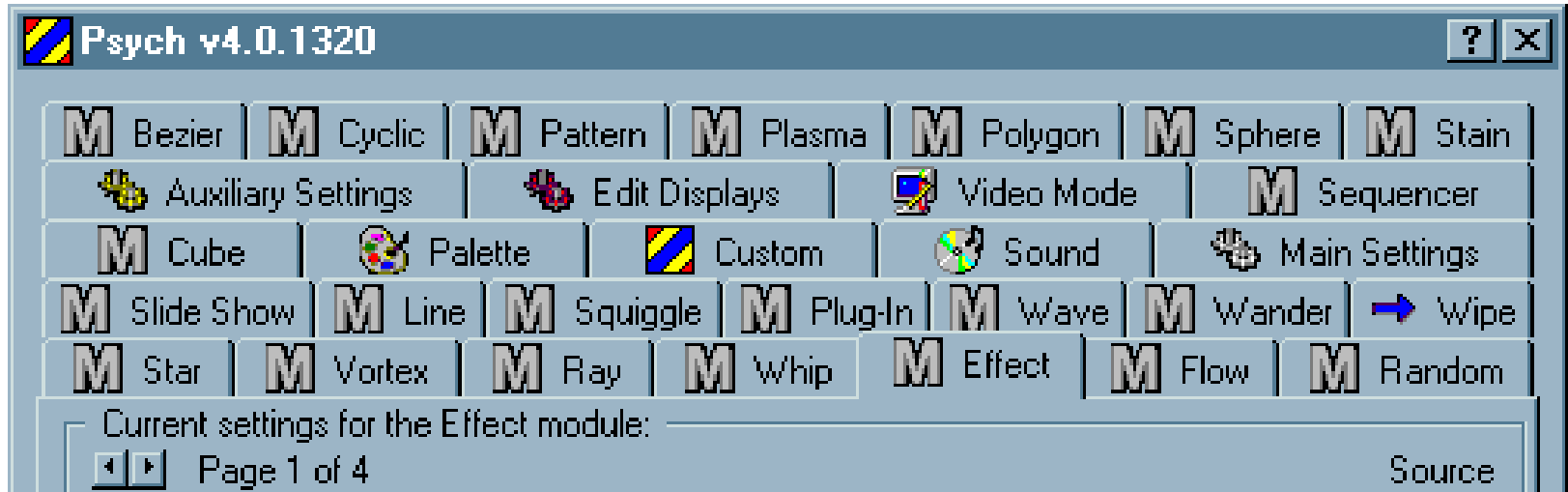Technological perspective

People perspective

Human-Computer Interaction (2)

Eye Candy

? Are you sure you want to delete 'Ridges'?

OK

Cancel   Help

Click this to display an overview of this dialog box, idiot.

For Help on an item, click [?] at the top of the dialog box, and then click the item.

AutoCAD Mechanical

Human-Computer Interaction (3)

Psych v4.0.1320

| Bezier | Cyclic | Pattern | Plasma | Polygon | Sphere | Stain |

Auxiliary Settings | Edit Displays | Video Mode | Sequencer

Cube | Palette | Custom | Sound | Main Settings

Slide Show | Line | Squiggle | Plug-In | Wave | Wander | Wipe

Star | Vortex | Ray | Whip | Effect | Flow | Random

Current settings for the Effect module:

◄ ► Page 1 of 4   Source

Graphics

Concerned with everything to do with producing images on the computer.

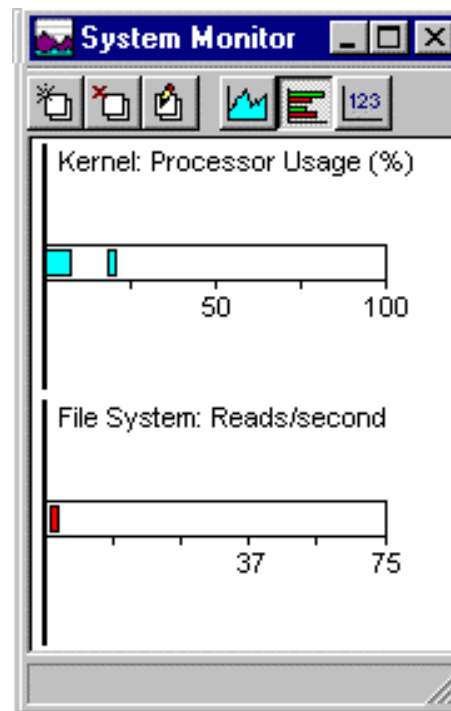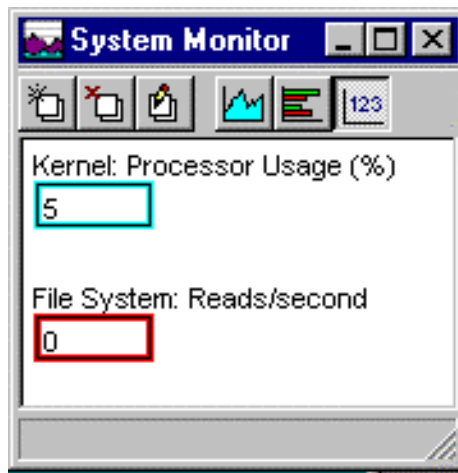Scene from MechWarrior 4: Vengeance © Microsoft

Graphics (2)
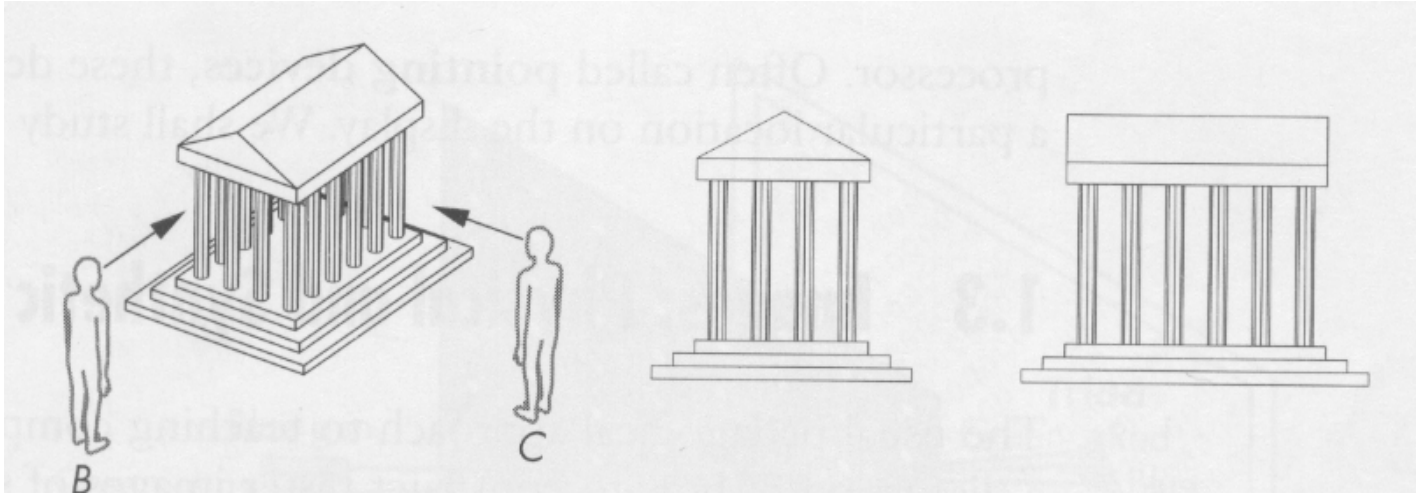
Highly mathematical

Information Visualization

Finding ways of representing information in a way that amplifies cognition.
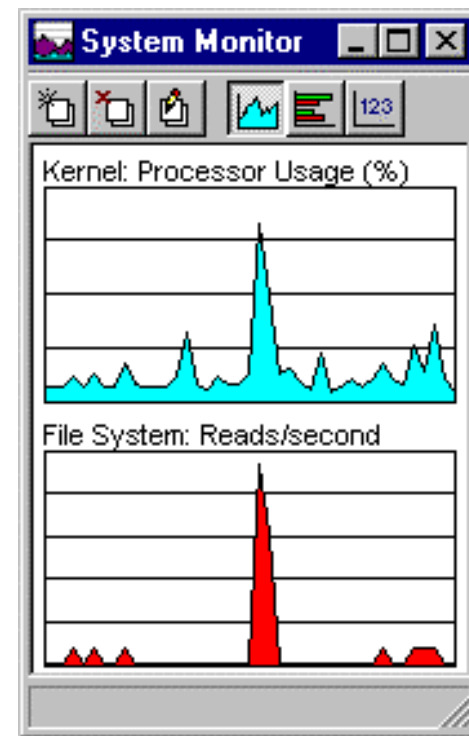
Information Visualization (2)

	A	B
1	Market value ($)	Improvement cost ($)
2	140000	31120
3	147000	29980
4	151000	38120
5	152000	34360
6	155000	40710
7	170000	21620
8	172000	42100
9	178000	41070
10	180000	34210
11	180000	44090
12	182000	55960
13	185000	45170
14	185000	46820
15	193400	50200
16	194500	71860
17	197000	48460
18	203000	40720
19	205000	56600
20	213000	42780
21	221000	58770
22	225000	58960
23	245000	48910
24	248000	62620
25	278000	58580
26	302500	72200
27	308000	67320

Improvement costs vs. Home values
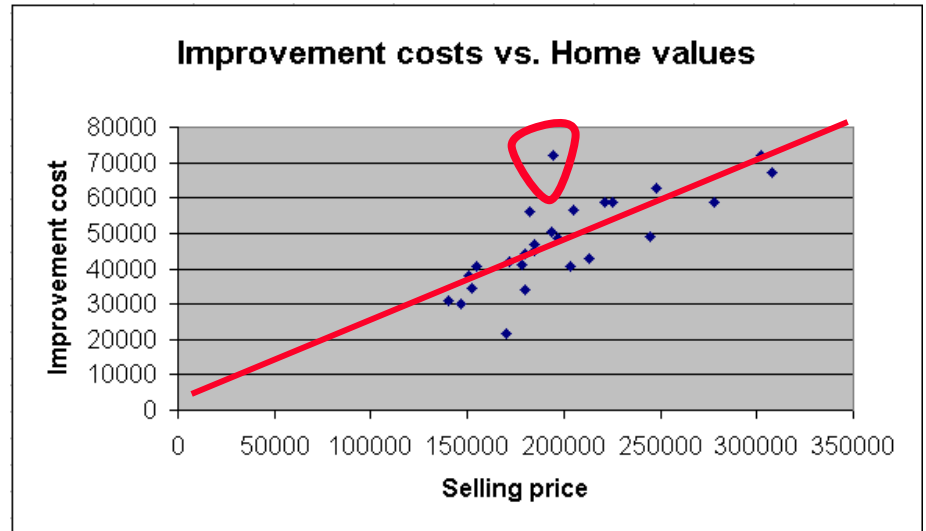
<u>Databases</u>

Concerned with the efficient storage, retrieval and distribution of information

It can be a difficult challenge!
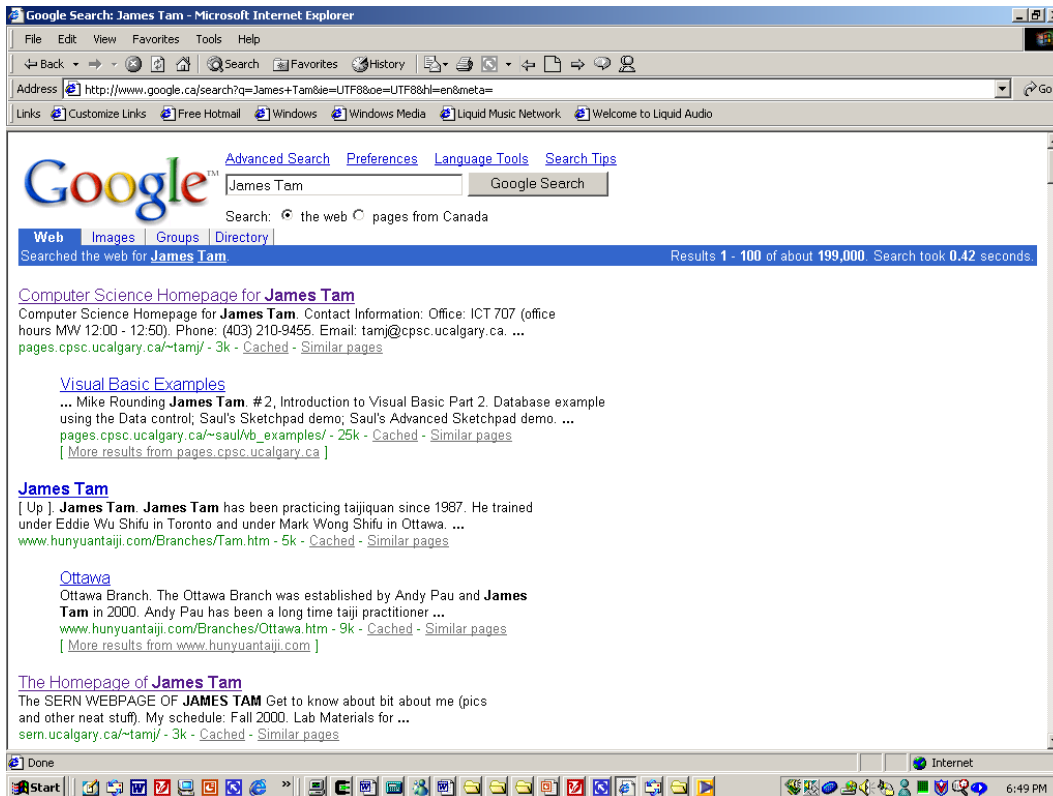
Databases (2)

Concerned with the efficient storage, retrieval and distribution of information

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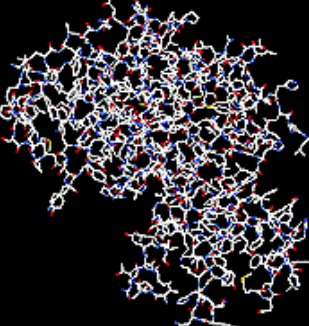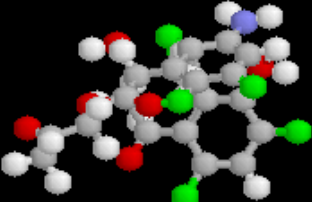Results **1 - 100** of about **199,000**. Search took **0.42** seconds.
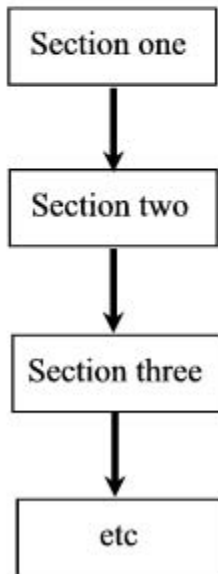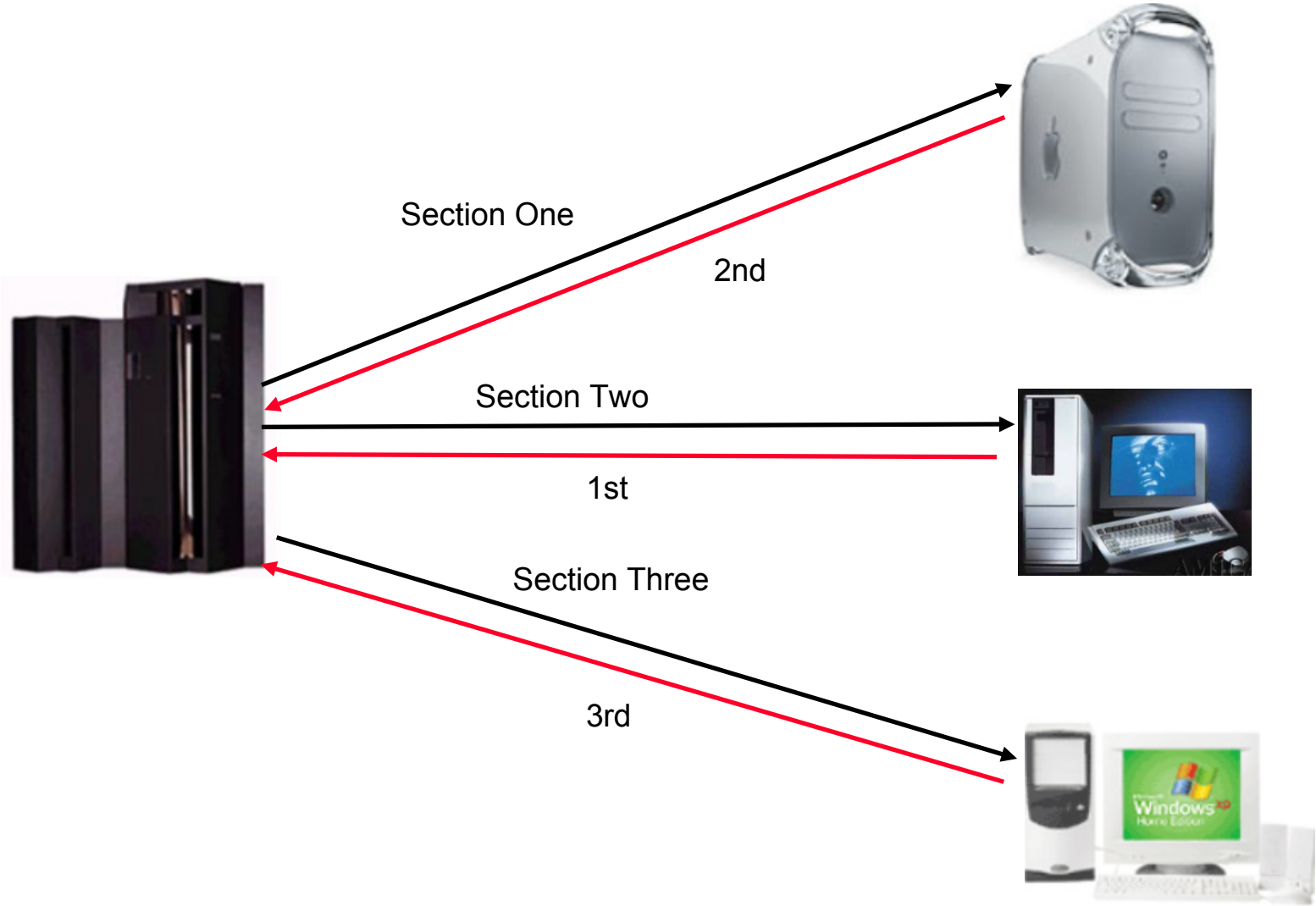
Theory

e.g., Distributed Computing

THINK © United Devices Inc. is part of a distributed Cancer research project. For more information go to http://www.ud.com

Theory (2)
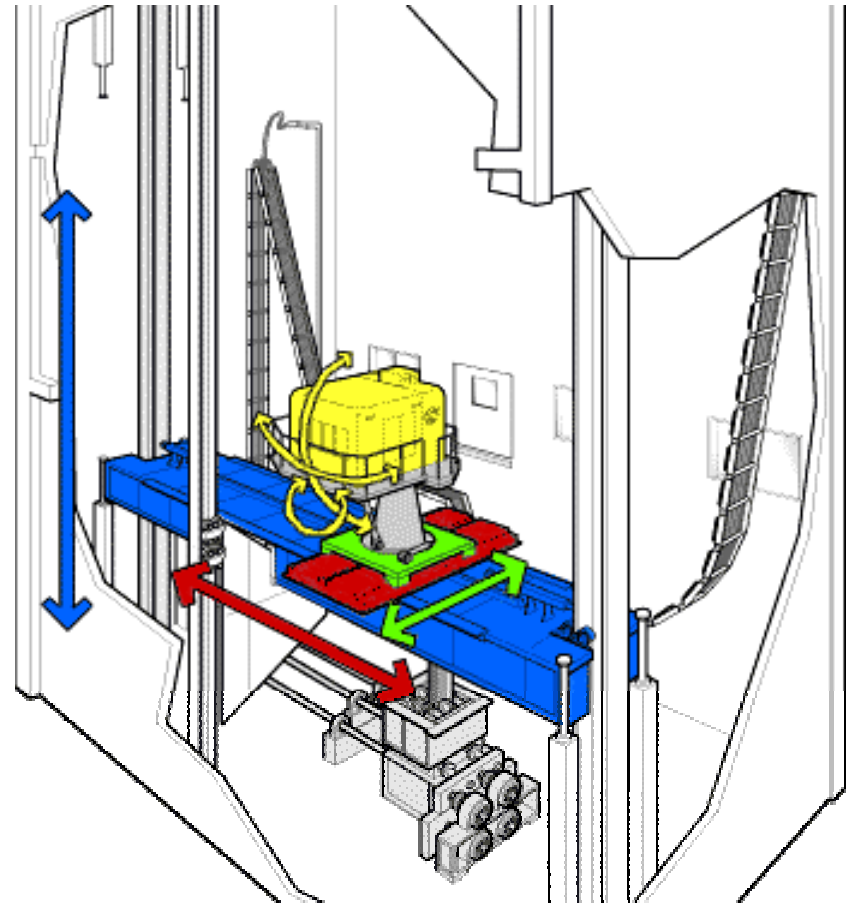
Ensuring proper order

Section one

↓

Section two

↓

Section three

↓

etc

Theory (3)

Section One

2nd

Section Two

1st

Section Three

3rd

Simulations

Images from http://www.simlabs.arc.nasa.gov/vs.

Simulations (2)

Recreating behaviour by an analogous model or situation to gain information more conveniently or to train personnel.

Why simulate?
- Complex systems
- Dangerous experiments
- Controlled conditions
- Cost savings

Artificial Intelligence
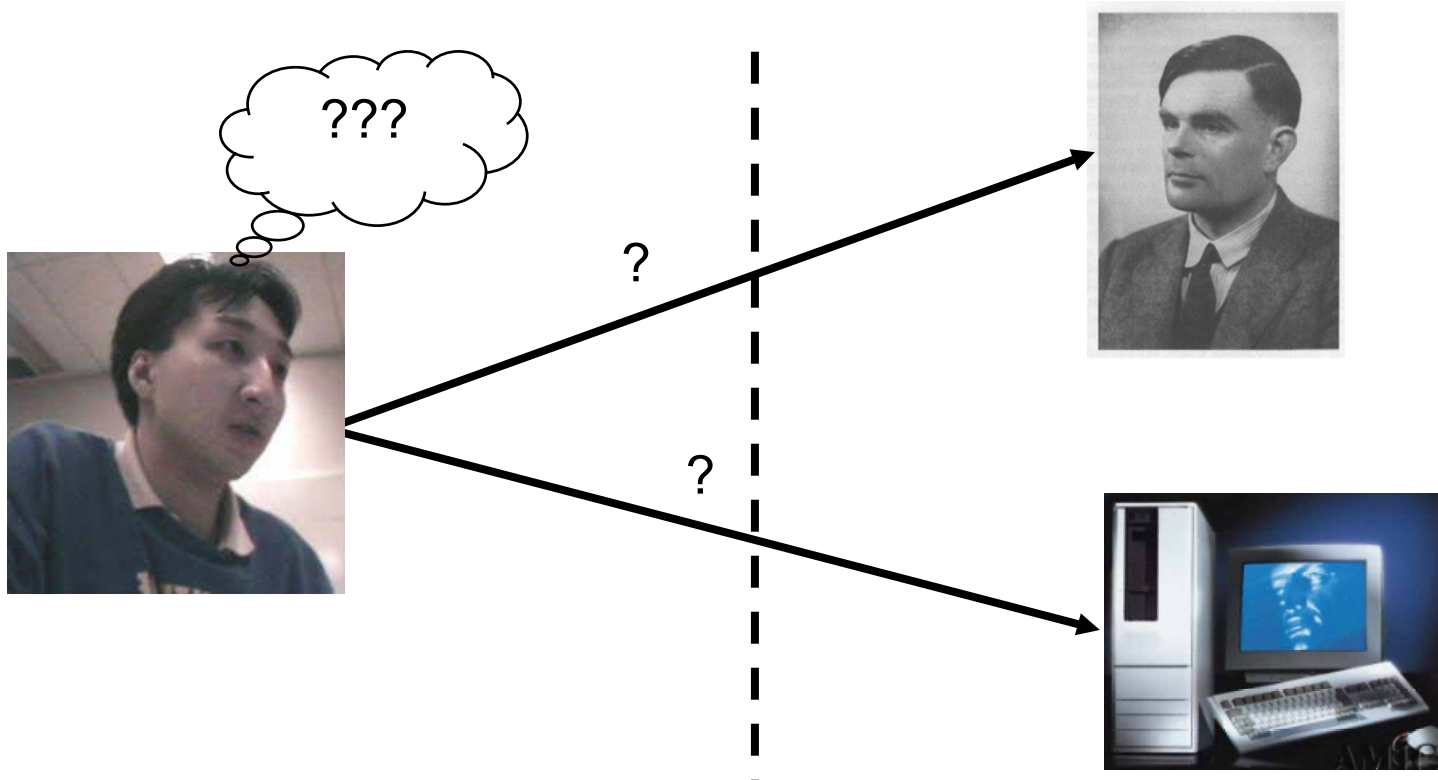
What makes a person smart?

Photo from www.startrek.com © Paramount

How do make a smart machine?

Artificial Intelligence (2)

How do we know we have a "smart machine"?
- Turing test

Computer Vision

Understanding and improving upon how the computer "sees"
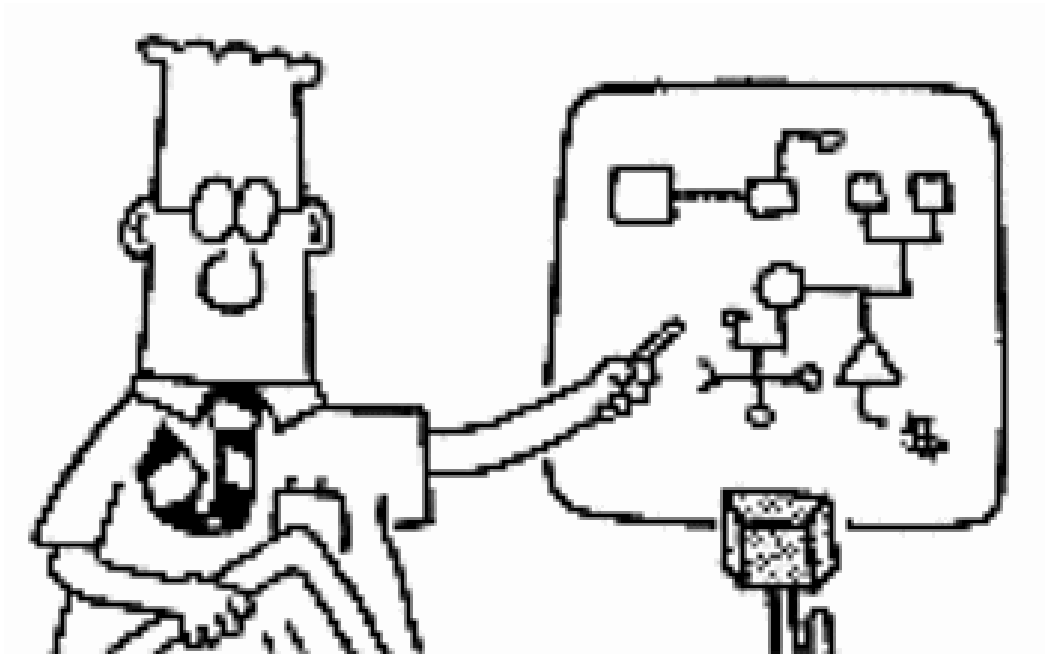
- e.g. Six?

Many diverse areas of application

Software Engineering

Avoid "hacking-out" software

Involves develop systematic ways of producing good software

Dilbert © United Features Syndicate

Games Programming

Pulls together many areas of Computer Science

Interdisciplinary

The U of C is the only Canadian university to offer this area of study.

WarCraft III © Blizzard Entertainment

Blatant advertisement!!!