

School of Computer Science  
McGill University

Who are we



# School of Computer Science

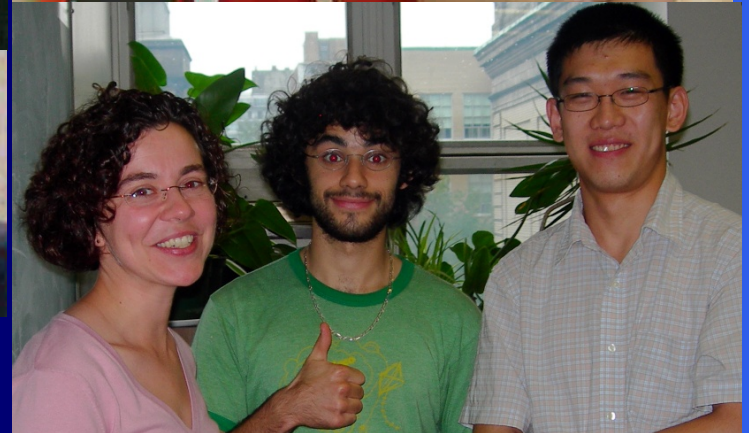
- One of the top CS departments in Canada
- 33 top-rate professors

2 Leo Yaffe Awards for superior teaching

- Outstanding undergraduates

Every year our students place in the Computing Research Association (CRA)'s Outstanding Undergraduate Awards.

# We are all a part of the SOCS!









What can you do with  
Computer Science



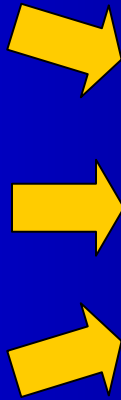
# What is Computer Science?

- Learn how to design algorithms
- Learn how to program
- BUT COMPUTER SCIENCE IS SO MUCH MORE!

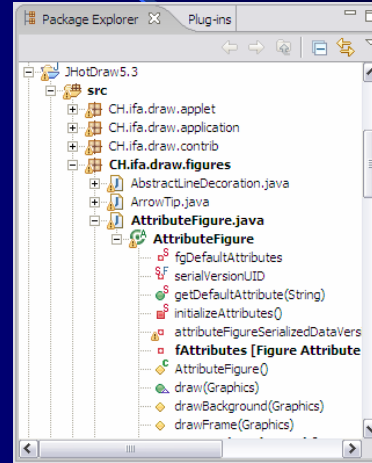


# Software Engineering

## Translating User Requirements into Quality Software Products



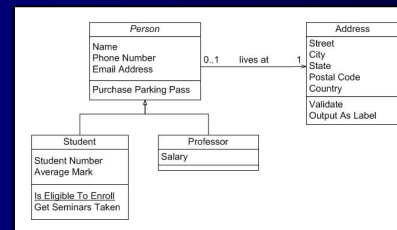
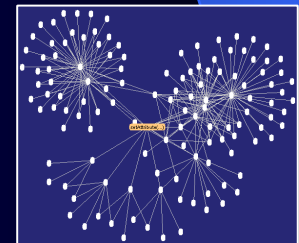
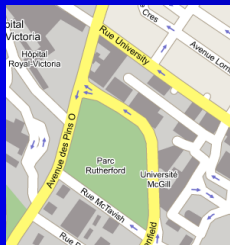
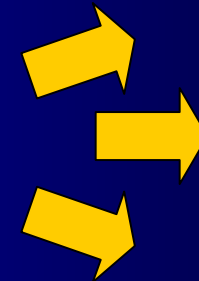
Software Engineer



```
int lOps = DND.DROP_COPY | DND.DROP_MOVE;
Transfer[] lTransfers= new Transfer[] {
    LocalSelectionTransfer.getInstance() };
aViewer.addDropSupport( lOps, lTransfers, new ConcernMapperV
aViewer.addDragSupport( lOps, lTransfers, new DragSourceAdap
)

private void makeActions()
{
    aSaveAction = new SaveAction( this ) :
    aSaveAction.setEnabled( ConcernMapper.getDefault().isDirty()

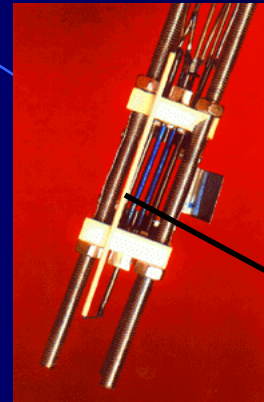
    aDoubleClickAction = new Action()
    {
        public void run()
        {
            ISelection lSelection = aViewer.getSelection();
```



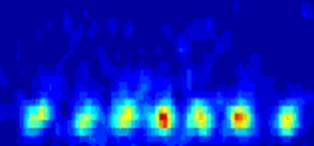
# Designing computers for the 22<sup>nd</sup> century

Will the computers of the future be similar to the ones we use today or based on radically different principles?

As individual logical components reach the atomic scale, the laws of logic themselves change!

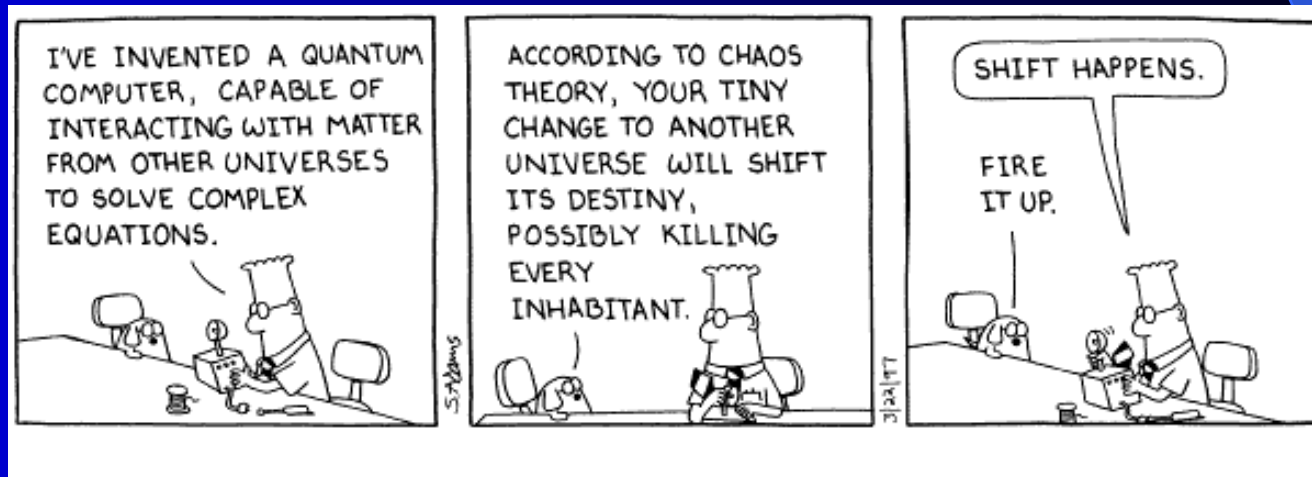


Ion trap



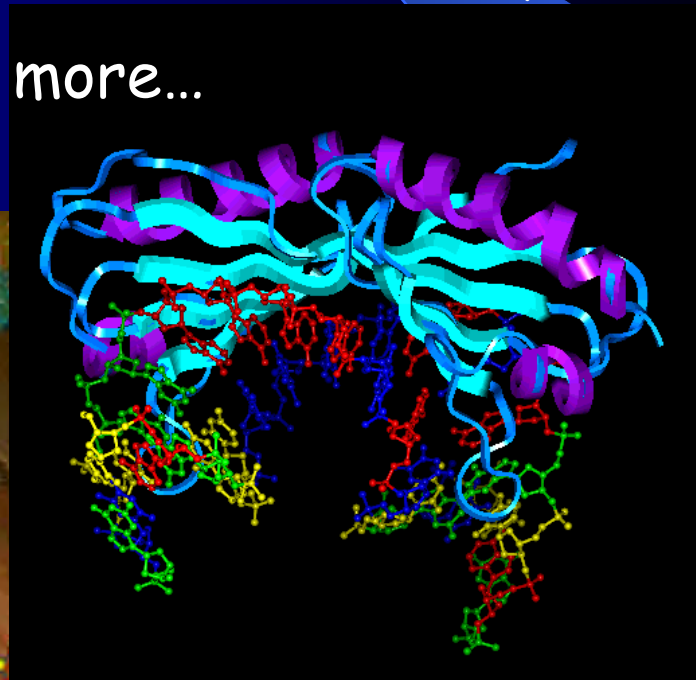
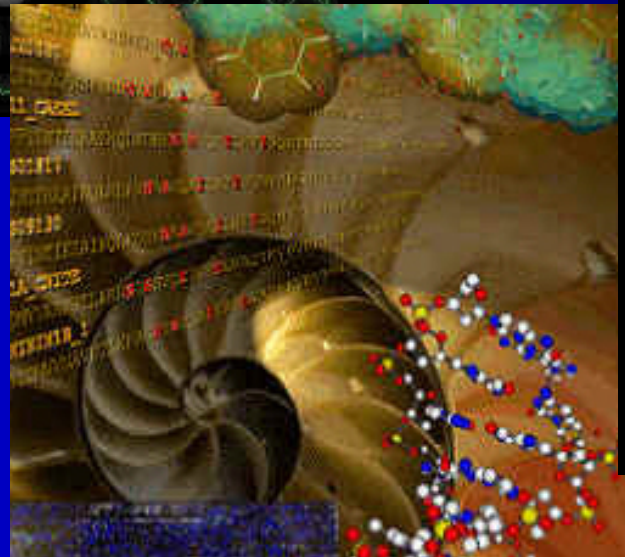
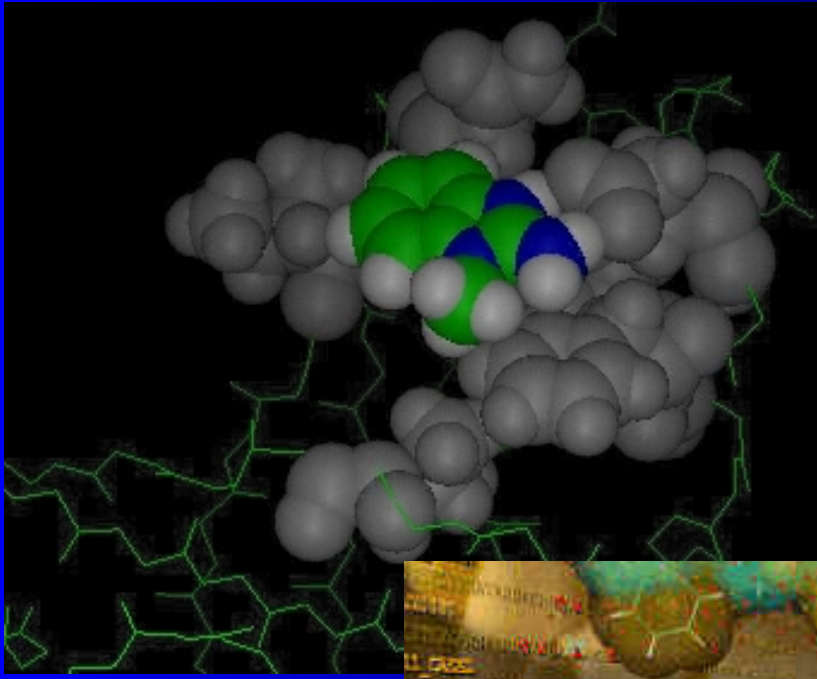
7 trapped ions

© R. Blatt, Innsbruck



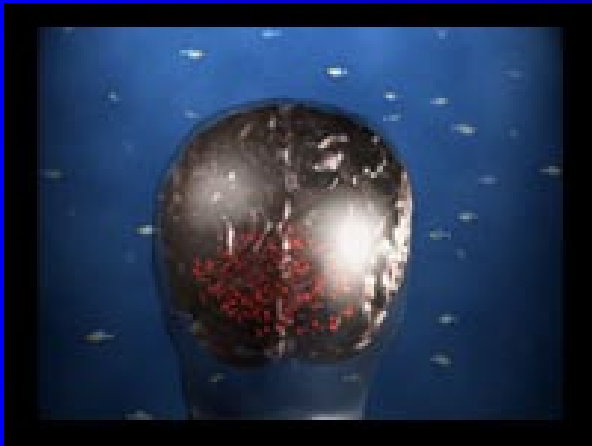
# Biology + Computer Science

We can use computer science to find patterns in DNA, model biological systems, determine the structure of molecules, and much more...

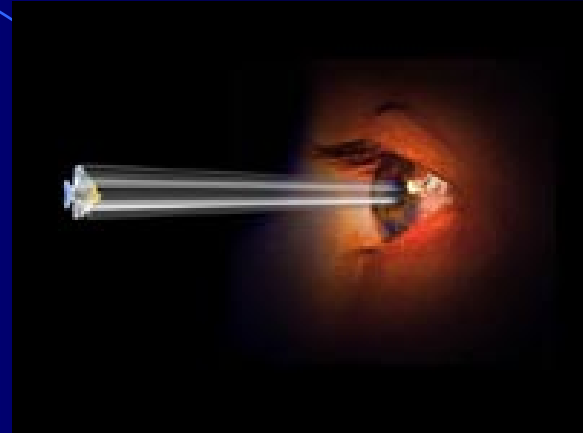


# Neuroscience + Computer Science

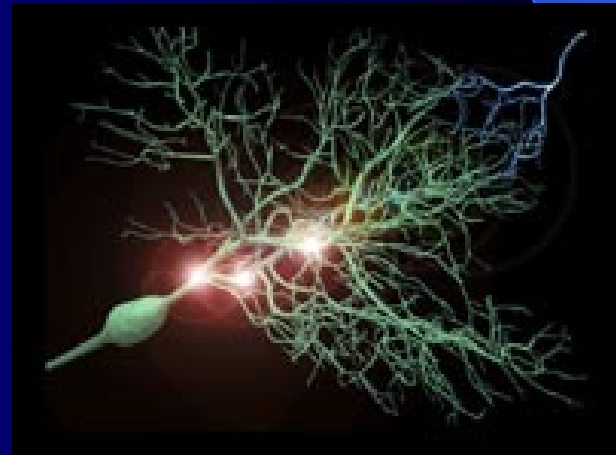
We can use computers to see what happens in a person's brain when they think, and to model how the brain solves problems



Brain activity: what it looks like when you think



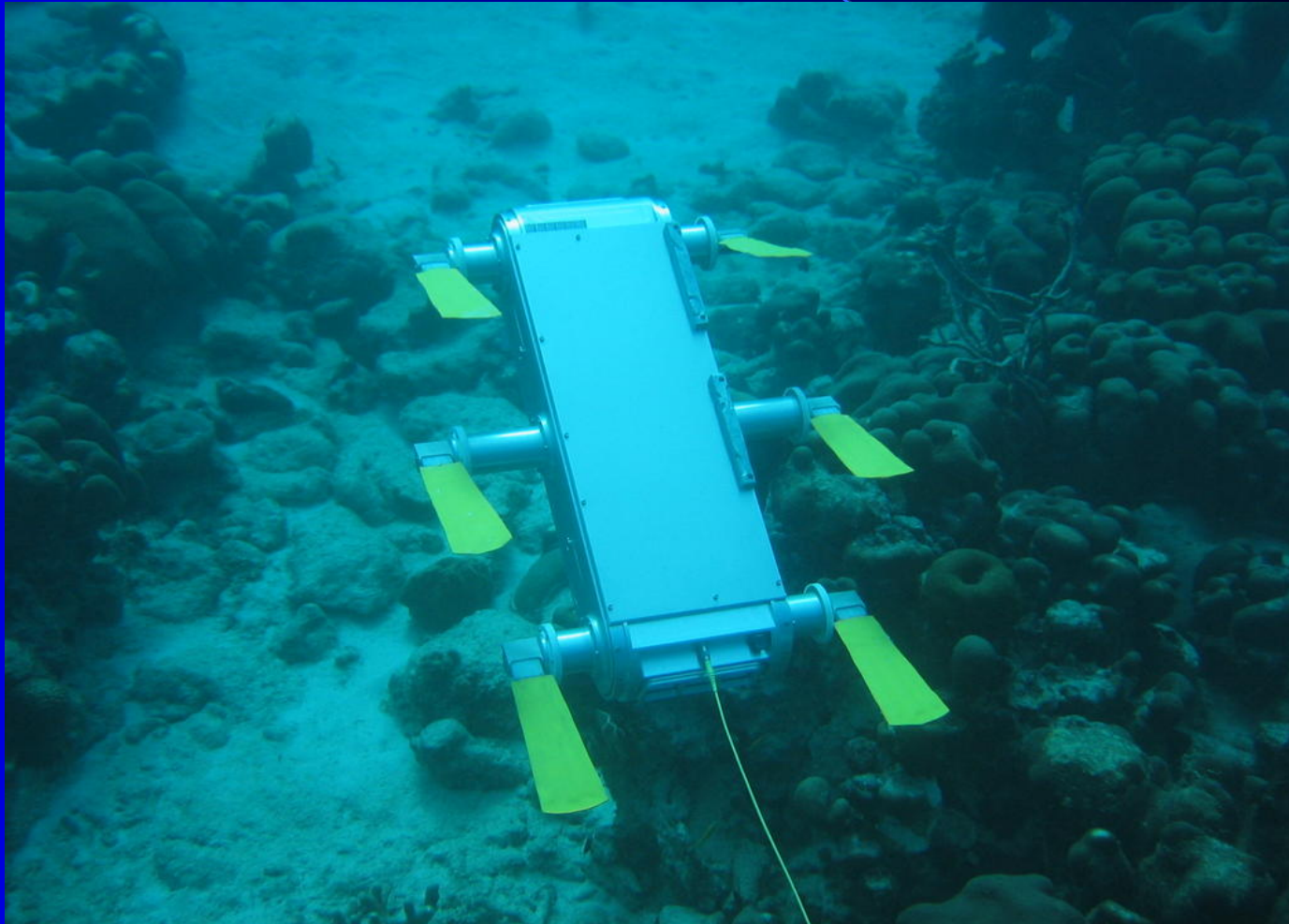
Light traveling into the eye



A neuron:  
your brain is made up of millions of these

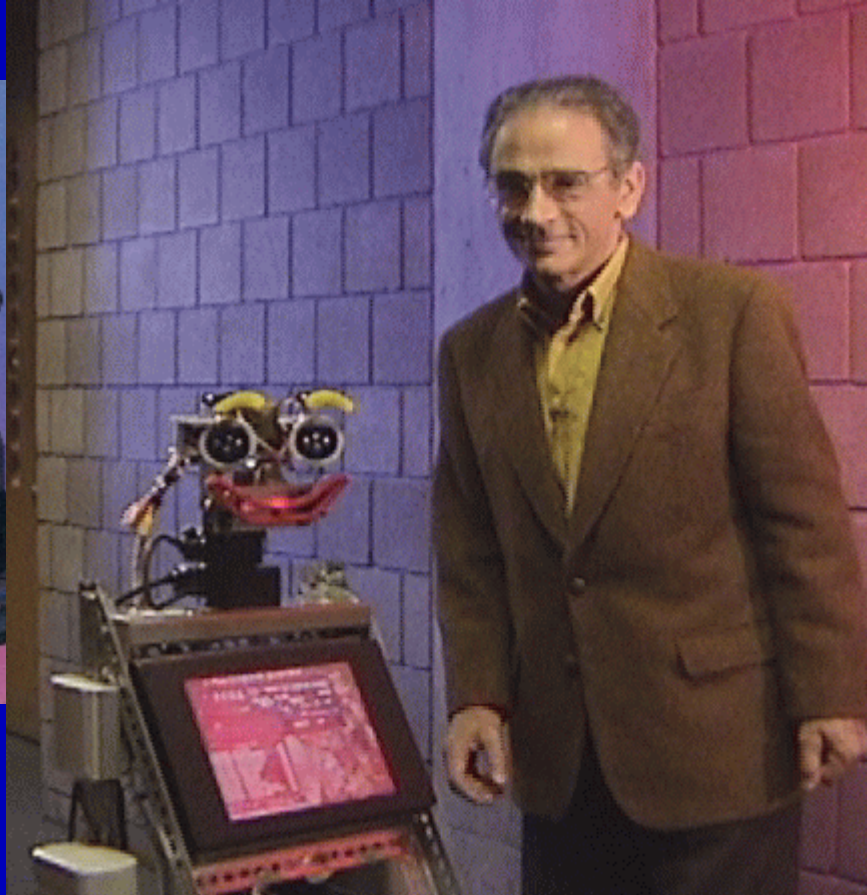


# Robots that can swim: Aqua Robot Sports + Computer Science



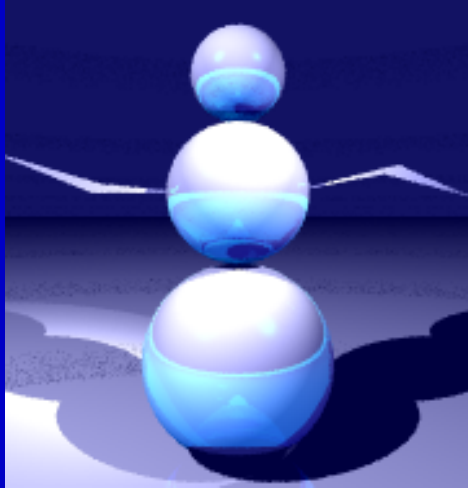
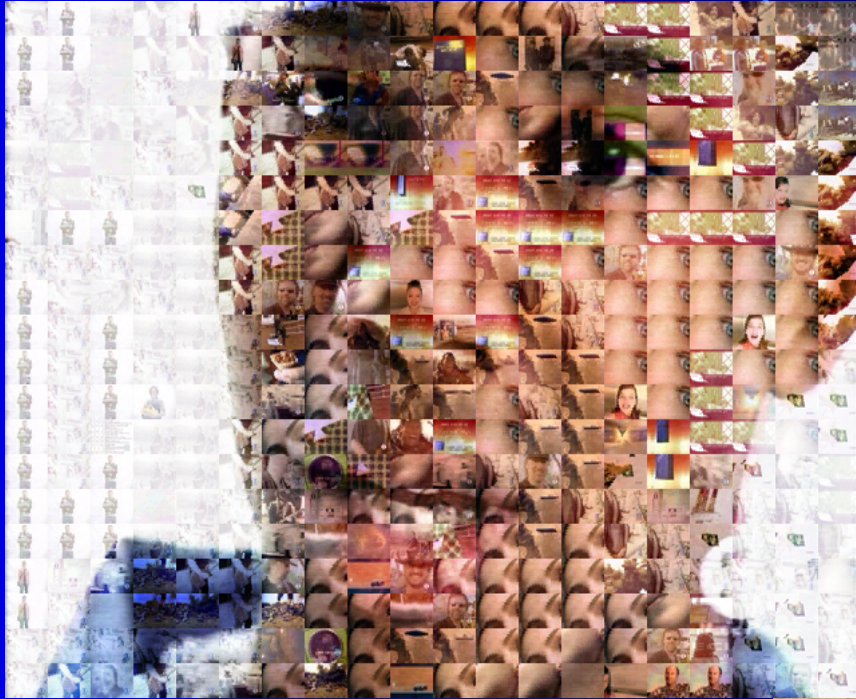


# Robots in Health Care: Health Care + Computer Science



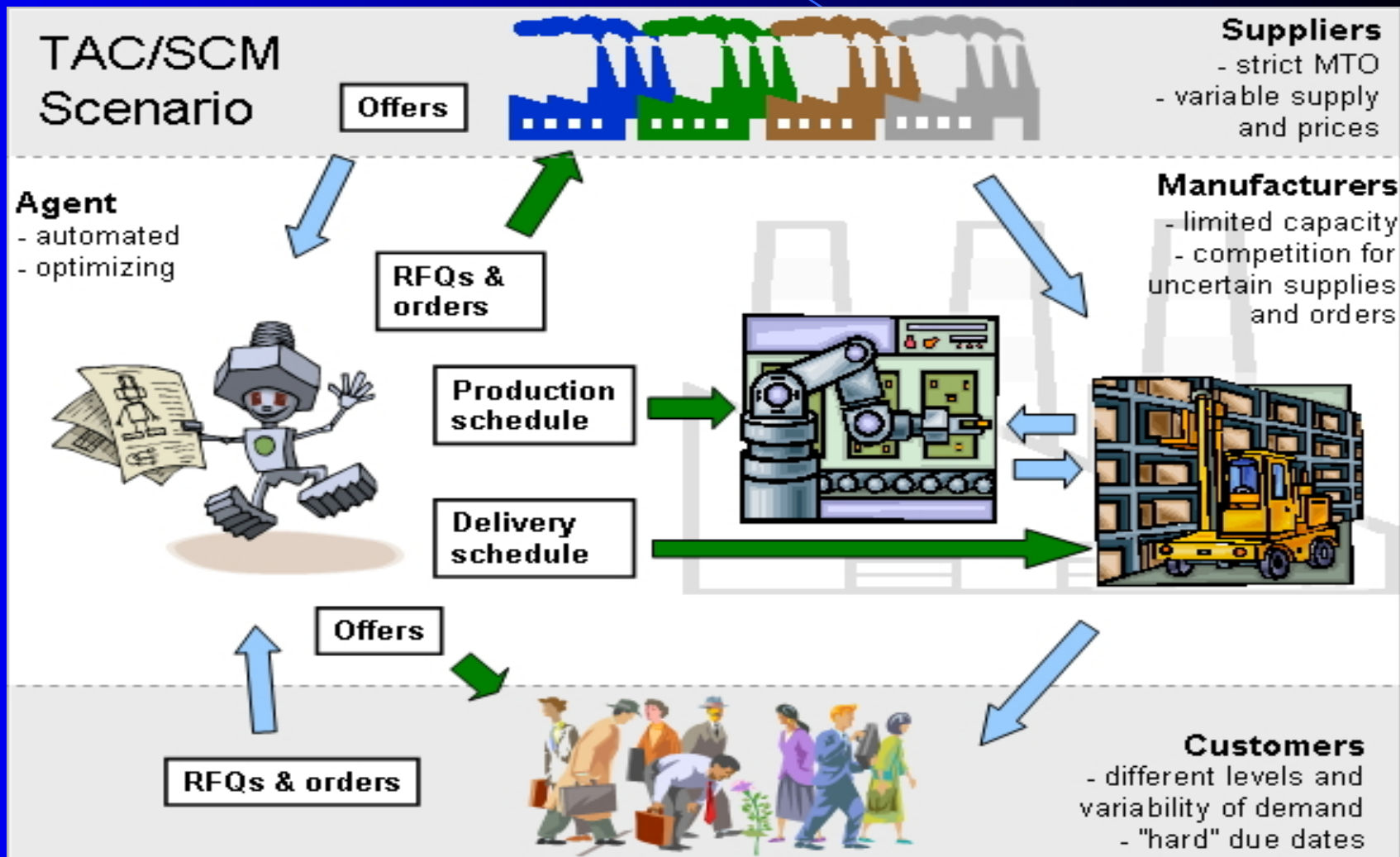
Robot Flo speaking and dancing!!

# Graphics: Art + Computer Science





# Economics + Computer Science: win the trading competition!



# Computer Science Programs

- B. Sc. in Computer Science
  - Major in Computer Science
    - New Computer Games option!
  - Honours in Computer Science
- Major in Software Engineering

# CS and SE

- Share a common core:
  - SE has more required courses
  - CS has more choice
- Fundamental concepts in CS (~42 credits)  
(algorithms and data-structures, theory of computation, programming languages and paradigms)
- Complementary courses (~18 credits): (AI, graphics, robotics, networks, software engineering, bioinformatics, databases, ...)
- Electives (30 credits): Any field in arts and science.





# Software engineering in ECE vs CS.

- Share a common core

- SE in CS:

Foundations of CS and Development of software  
(as opposed to hardware, circuits, chip design etc.)

7-8 electives

Take advanced higher-level courses

Combine studies with a wide choice of minors

# Software engineering in ECE vs CS

- Share a common core
- SE program in ECE
  - 9 required ECE courses (ECE 210 Circuit analysis, ECE 291 Electrical Measure Lab, ECE 305 and 306 Signal processing)
  - 6-8 credits must also be from ECE

Certification irrelevant outside Quebec

# Major/Minor concentrations

Combine computer science with other fields!

Some possibilities:

- Cognitive Science
- Bioinformatics
- Economics
- Linguistics
- Physics
- Mathematics
- Statistics
- ...



[www.cs.mcgill.ca](http://www.cs.mcgill.ca)

# Minor in CS

Combine computer science with another field!

- Minor in CS (24 credits)
- Special Minor in CS for ECE students has a combination with ECE courses
- Minor concentration in CS (18 credits)
- BSc Liberal program



# Class size and advising

- **33 top-rated professors**
  - 2 Leo Yaffe Award winners
- **Small class sizes! (15 - 25 students)**
- **Academic advising sessions**  
(Industry and Research internships, Applying for graduate school and for scholarships etc.)
- **Undergraduate research initiative**
- **IYS (Internship Year in Science)**



What can you do with a degree  
in computer science



# Life after graduation

- **Job prospects are excellent!**  
IT Industry cannot meet their need for computer science graduates!  
30% growth in computing employment
- **Starting salary: 50K - 60K per year**
- **Great foundation for advanced studies in medicine and law (see some bios from our recent graduates)**
- **Go to graduate school in CS!**  
Many of our graduates pursue a PhD at top-schools such as MIT, CMU, Berkeley, Toronto, UBC, McGill

# Want to find out more?

- Check out our web-site: [www.cs.mcgill.ca](http://www.cs.mcgill.ca)
- Advisors:
  - Doina Precup (Undergraduate Program Director)
  - Nathan Friedman (Chief Academic Advisor)
  - Brigitte Pientka
  - Clark Verbrugge
  - Adrian Vetta