Computer Science

The Digital Future

Our Panel

UNIVERSITY of GUELPH

CHANGING LIVES IMPROVING LIFE

Melanie Veltman

Masters Student • Robot Vision

Vacuums

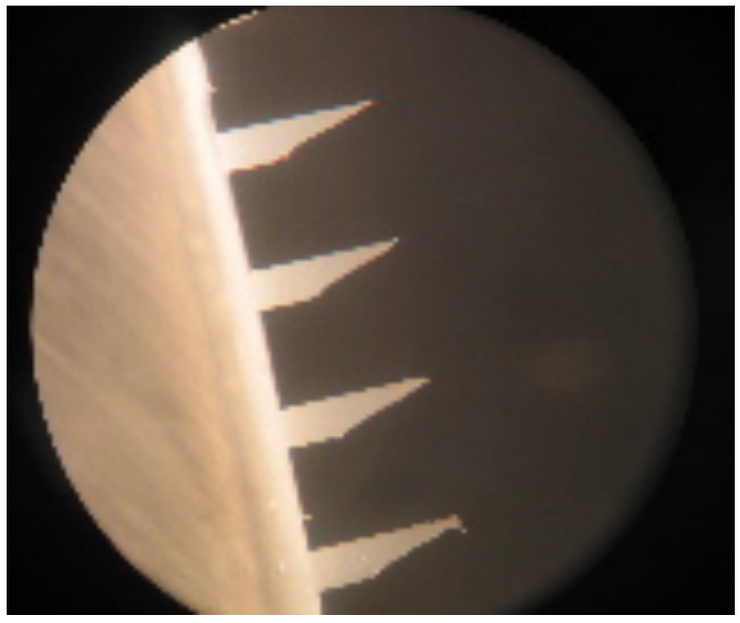
http://store.irobot.com/product/index.jsp?productId=2475131&cp=2804605&ab=CMS_StoreHome_Gifts_DirtDog_102308
http://store.irobot.com/product/index.jsp?productId=2580729&cp=2804605&ab=CMS_StoreHome_Gifts_Roomba410_102308

Warrior

http://bdml.stanford.edu/twiki/bin/view/Main/StickyBot

Stickybot

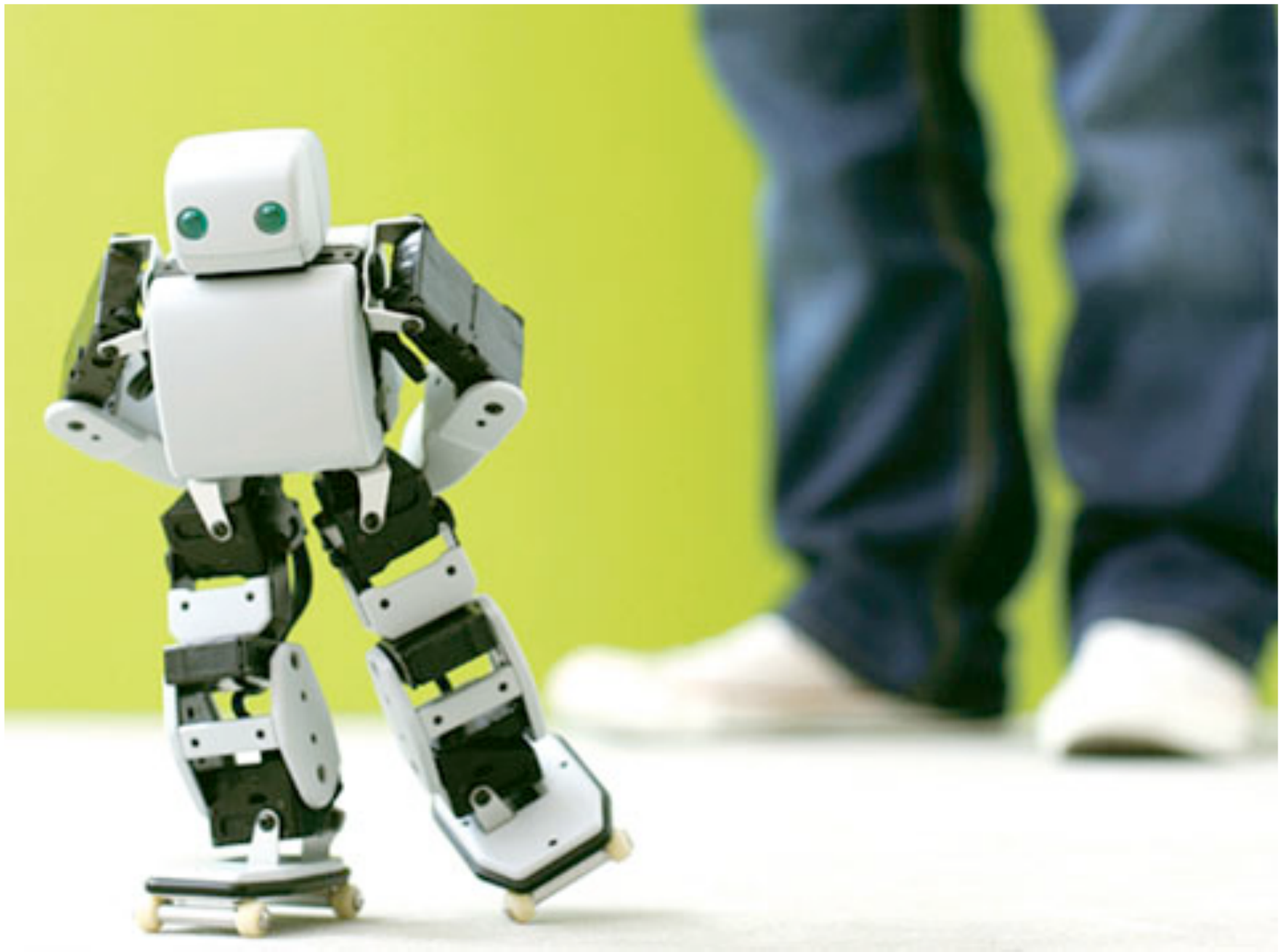
A Wall Climbing Robot



http://www.irobot.com/sp.cfm?pageid=150

PLEN

A Humanoid Robot



http://allezoup.files.wordpress.com/2008/03/plen_robot_skating.jpg

Nao

Playing Soccer at RoboCup

flickr.com/photos/northern_bites/2739708344/

Autonomous Mobile Robots

- Perception
- Cognition
- Action

Honda Asimo

http://blogs.thecarconnection.com/blogs/marty_blog/wp-content/uploads/2008/05/asimo_conducts_dso-sm.jpg

Asimo

Conducting the Detroit Symphony Orchestra

http://world.honda.com/news/2007/c071211Enabling-Multiple-ASIMO-to-Work/photo/pages/02.html

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Alana Cordick

Masters Student • Human Computer Interaction

Be Who You Want To Be

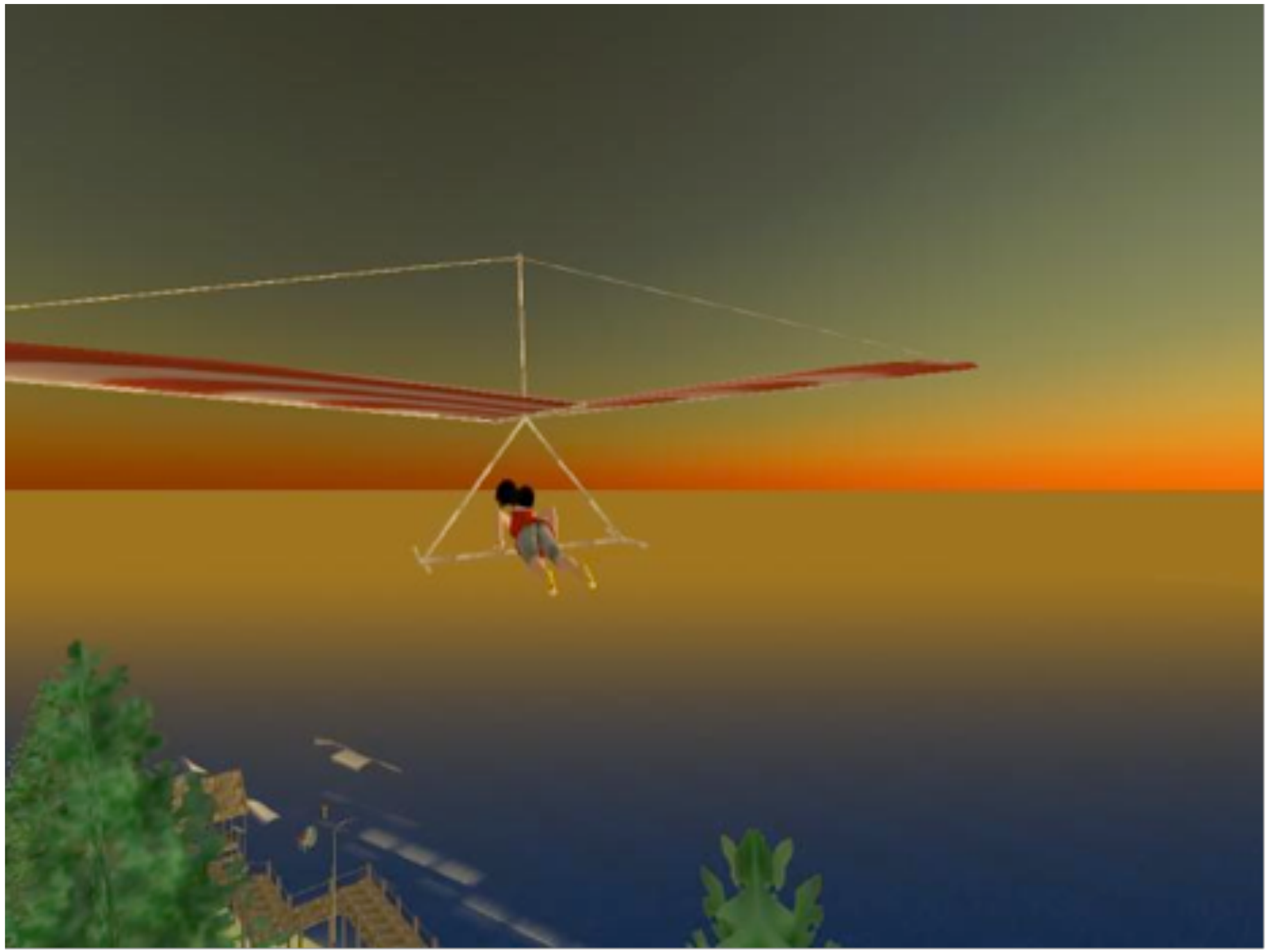
Or Be Yourself

Real World Photos By Robert Spencer For The Boston Globe

Be a Fashion Designer

Have Fun

Glide Into The Sunset



Dance On The Streets

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Julia Baldwin

Masters Student • Human Computer Interaction

Interruptions

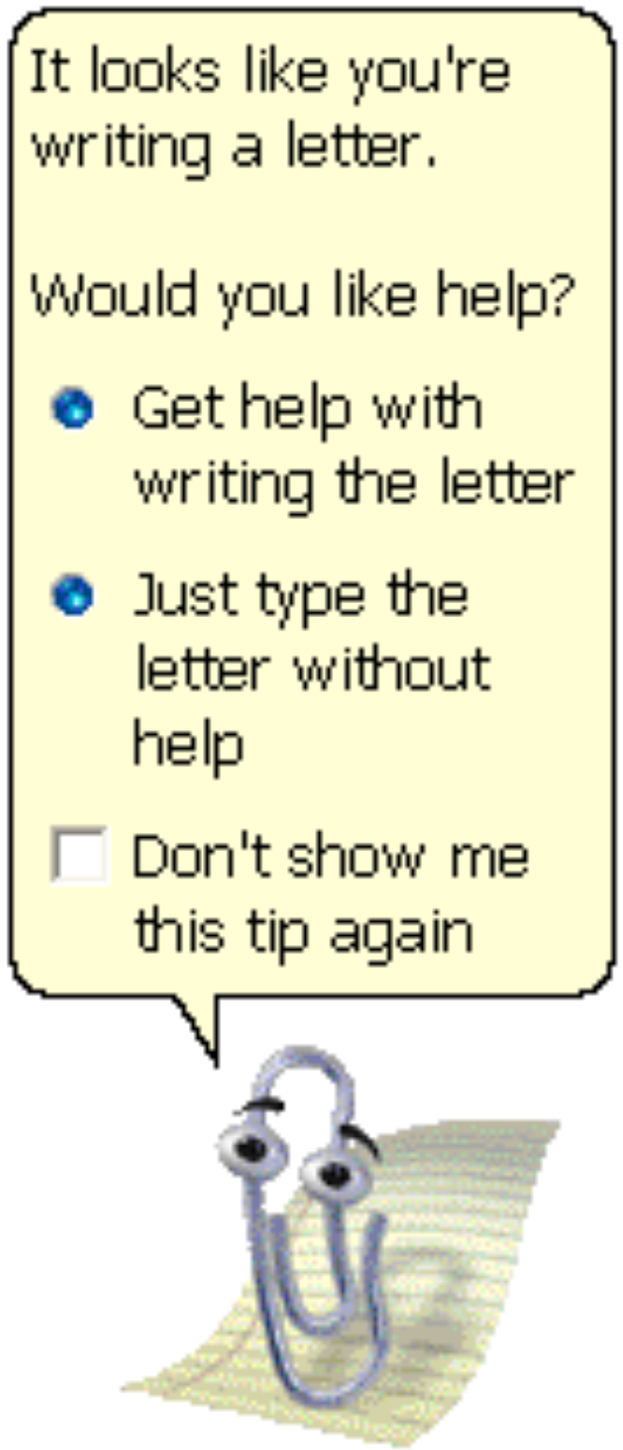
"Like to read, huh? Me, too. I'm a big reader. I just finished a book by Brown. You know Dan Brown? Great writer..."

http://www.cartoonstock.com/newscartoons/cartoonists/jlv/lowres/jlvn766l.jpg

Productivity

http://a.abcnews.com/images/Business/is_email2_071005_mn.jpg

Clippy



http://en.wikipedia.org/wiki/Clippyl

http://www.concurringopinions.com/archives/images/clippy.jpg

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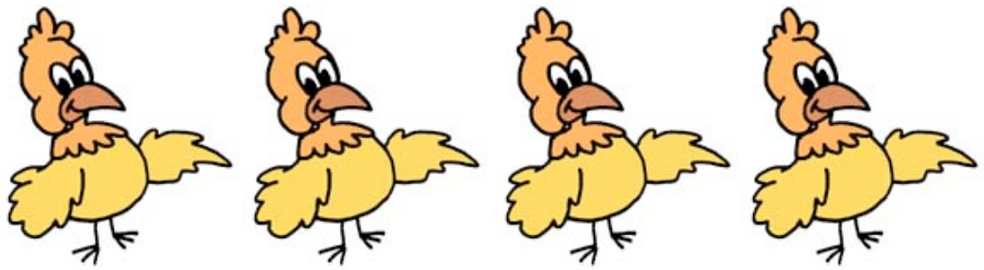
Deborah Stacey

Chair and Associate Professor • Disease Modelling

Fighting Disease with Supercomputers

- Simulating the spread of Foot and Mouth disease on a supercomputer

What is a Supercomputer?



"If you were plowing a field, which would you rather use: Two strong oxen or 1024 chickens?"

SHARCNET™

ONTARIO

Lakehead University

Laurentian University

Trent University

University of Ontario
Institute of Technology

York University
Ontario College of Art and Design

University of Guelph

Sheridan College

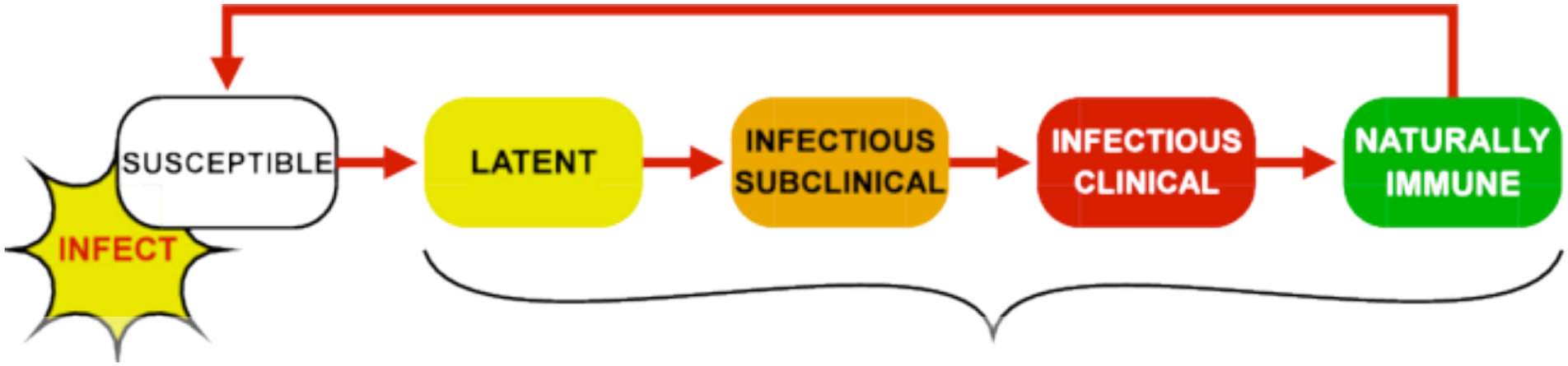
University of Waterloo
Wilfrid Laurier University
Perimeter Institute

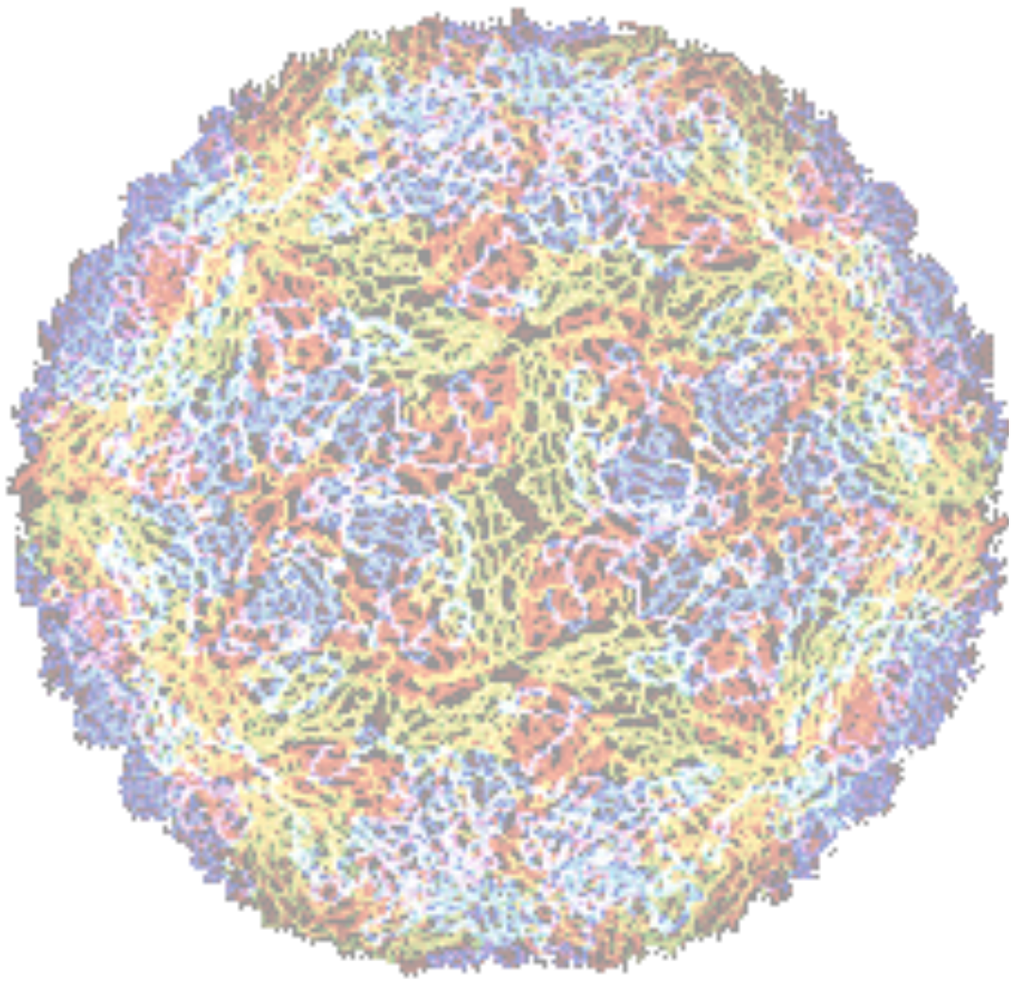
Brock University

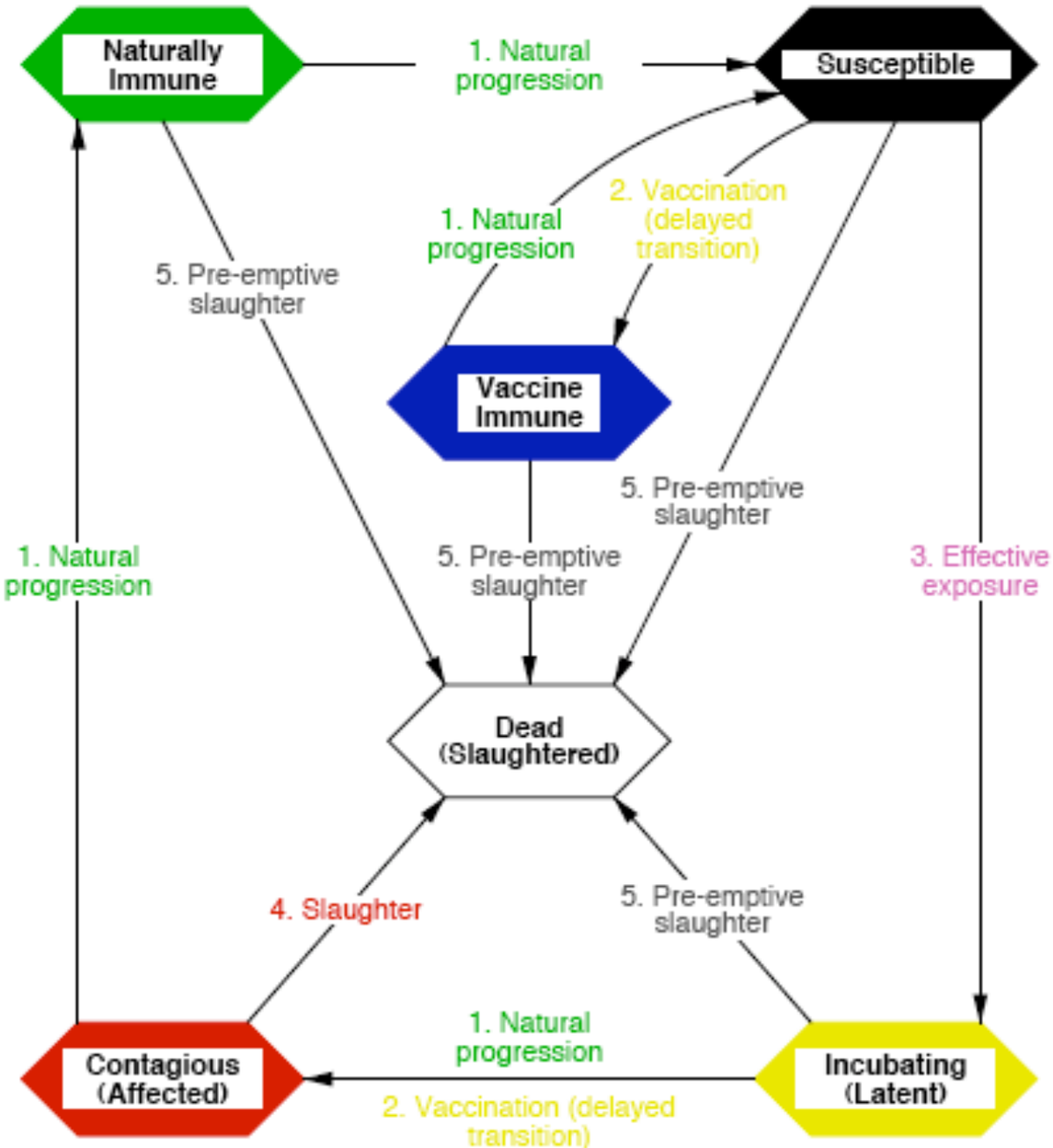
McMaster
University

University of Western Ontario
Fanshawe College

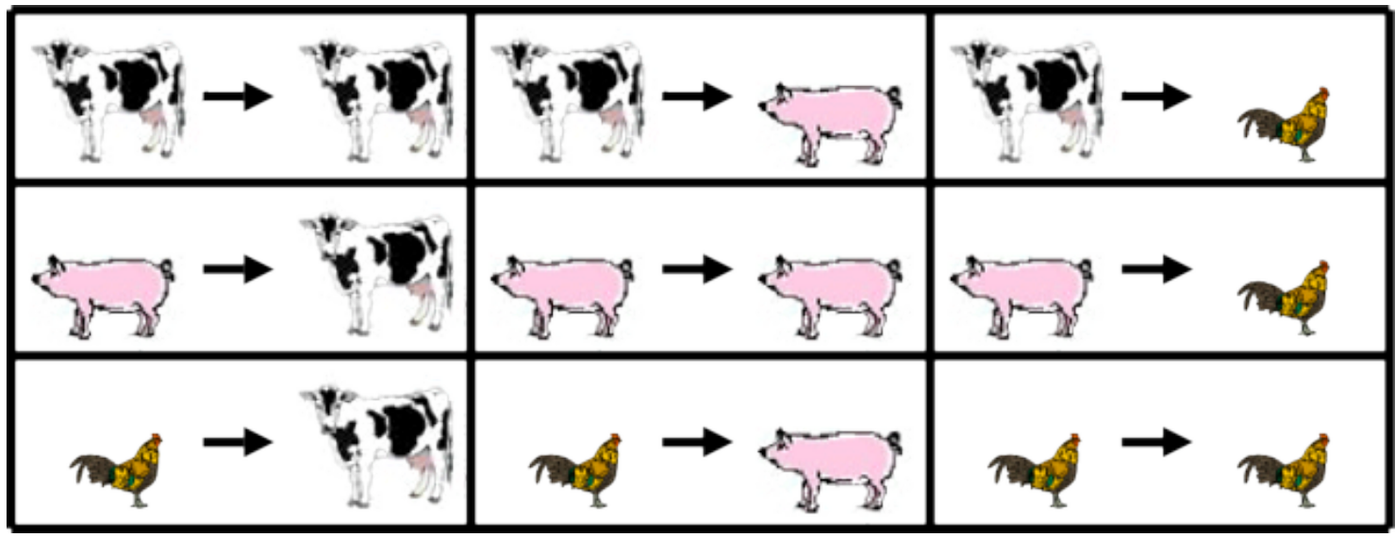
University of Windsor

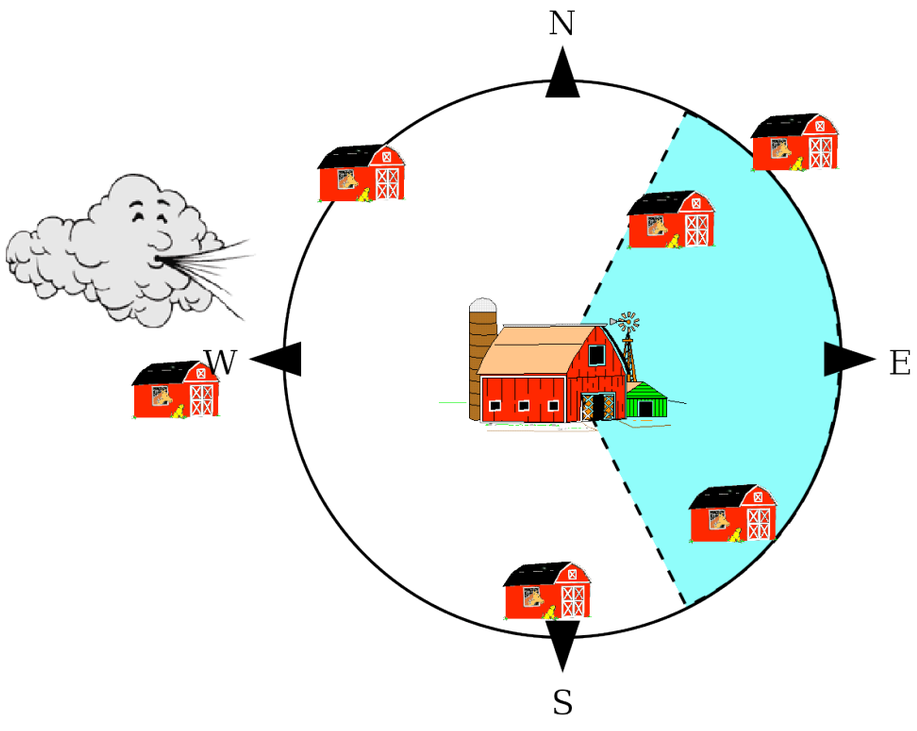

SUSCEPTIBLE
INFECT
LATENT
INFECTIOUS SUBCLINICAL
INFECTIOUS CLINICAL
NATURALLY IMMUNE



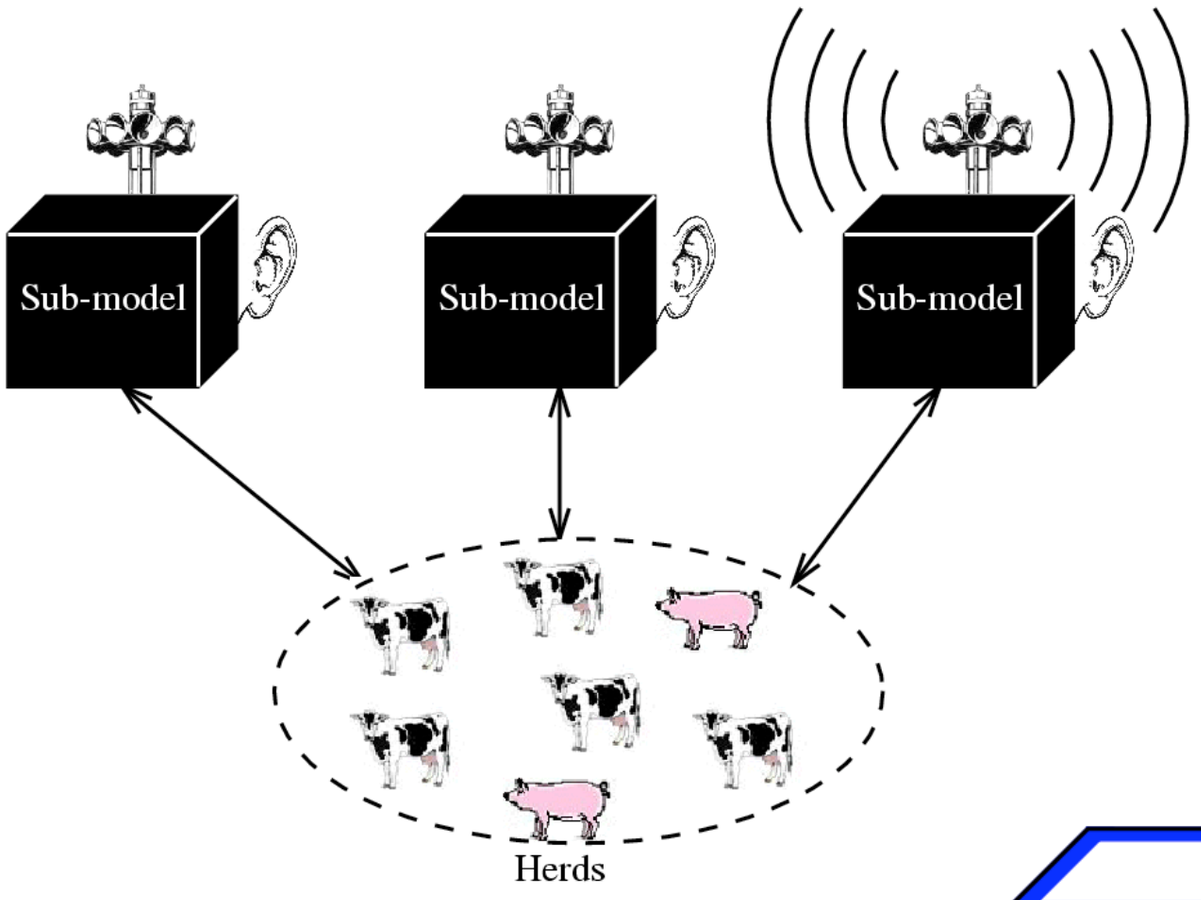

Naturally Immune
1. Natural progression
Susceptible
1. Natural progression
2. Vaccination (delayed transition)
5. Pre-emptive slaughter
Vaccine Immune
5. Pre-emptive slaughter
1. Natural progression
5. Pre-emptive slaughter
3. Effective exposure
Dead (Slaughtered)
4. Slaughter
5. Pre-emptive slaughter
1. Natural progression
Contagious (Affected)
Incubating (Latent)
2. Vaccination (delayed transition)

Modelling Disease Spread

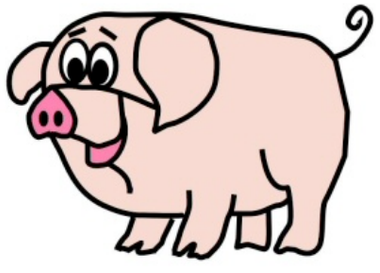


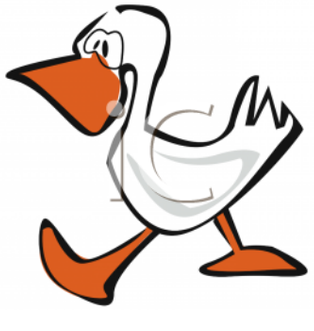


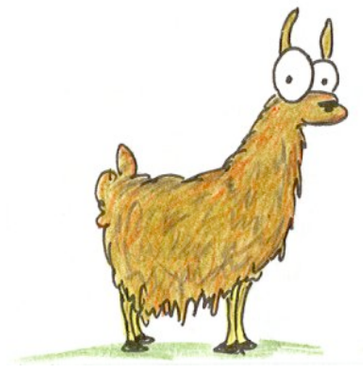
Divide and Conquer

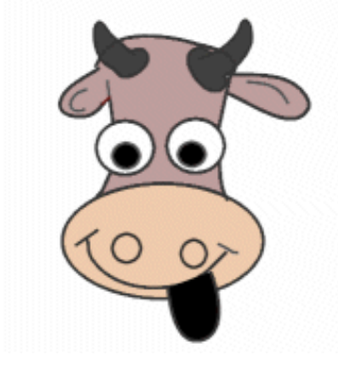


Saving Animals









Computing Crisis

- Canada is facing a severe shortage of computing professionals but few high school students are choosing to study computer science in high school or university.

Labour shortage could cripple Canada's tech industry: report

David George-Cosh, Financial Post
Published: Monday, January 21, 2008

Canada's technology companies will soon face a shortage of workers that could cripple the sector and deal a harsh blow to the Canadian economy, according to a report published by a coalition of industry professionals.

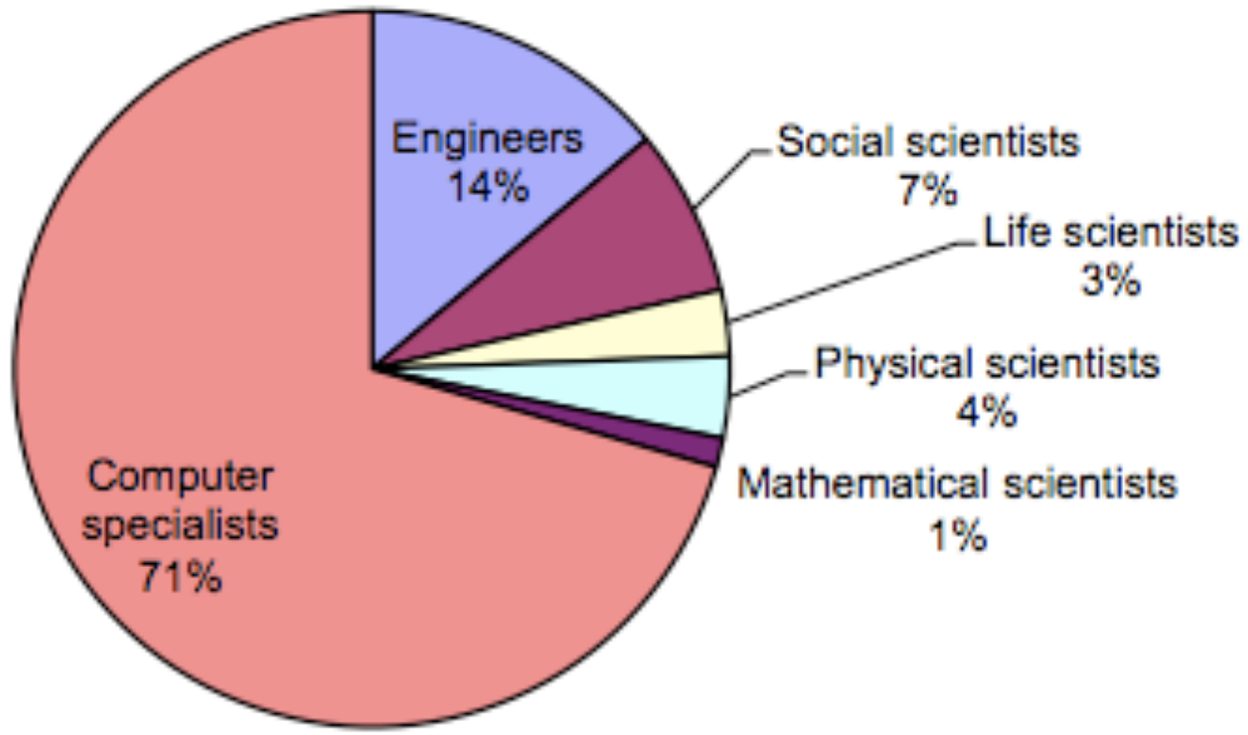
90,000 jobs!

More than 90,000 jobs in the information technology sector will need to be filled in the next three to five years and could potentially impact the Canadian economy to the tune of $10.6-billion, said Conference Board of Canada vice-president of organizational effectiveness, Dr. Michael Bloom.

"The problem is much bigger than any of us at the Conference Board has identified," said Mr. Bloom.

A "perfect storm" of socio-demographic factors, negative perceptions of the tech sector following the bubble burst of 2002 and a significant drop in university enrolment in IT programs across Canada has all come together to create this dire scenario, said Mr. Bloom.

A Look into the Future…



Projected Science and Engineering Job Creation
New jobs during the period 2006-2016

CNNMoney.com℠
A Service of CNN, Fortune & Money

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BEST JOBS IN AMERICA

Money salary.com™

MONEY Magazine and Salary.com rate careers on salary and job prospects.

By Tara Kalwarski, Daphne Mosher, Janet Paskin and Donna Rosato

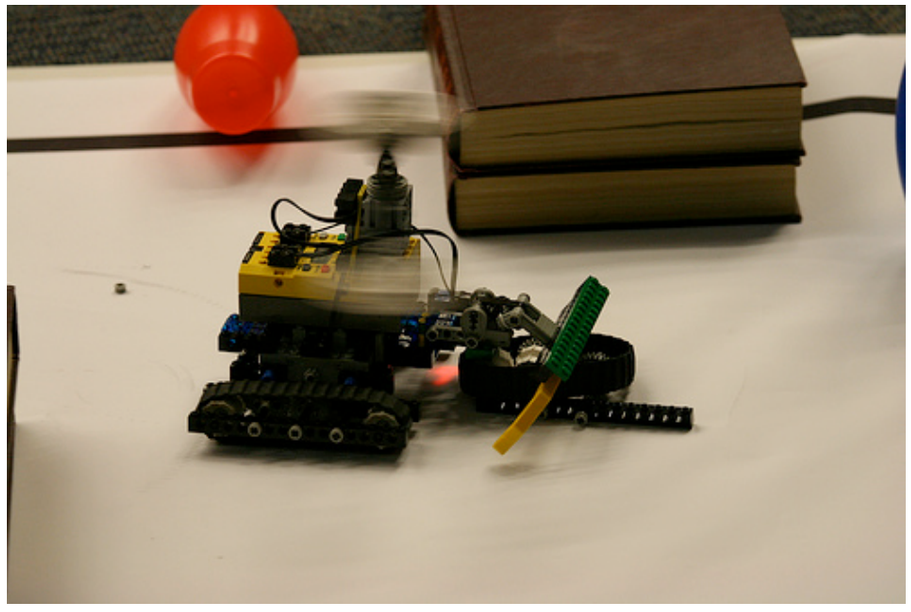
Top 10 best jobs

MONEY Magazine and Salary.com researched hundreds of jobs, considering their growth, pay, stress-levels and other factors. These careers ranked highest. (more)

1. Software Engineer
2. College professor
3. Financial adviser
4. Human Resources Manager
5. Physician assistant
6. Market research analyst
7. Computer IT analyst
8. Real Estate Appraiser
9. Pharmacist
10. Psychologist

But…

Computing is Excitement...



Computer Science is Cool

- What qualities define a computer scientist?
  - Creative
  - Into Social Networking
  - Analytical – good at problem solving
  - Interested in lots of things outside of CS
    - Biology, politics, games, music, sports
  - Socially Aware
- Development/poverty issues, the environment,…

Really??? Yes – the new geek is all of these things!

http://farm4.static.flickr.com/3115/2731100558_148e088172.jpg

What do Computer Scientists do?

Help people do their jobs!

- Take care of our money – financial sector
- Keep our records – e-medical records, e-gov't
- Create new ways of business, e.g. eBay, Amazon

Entertain Us

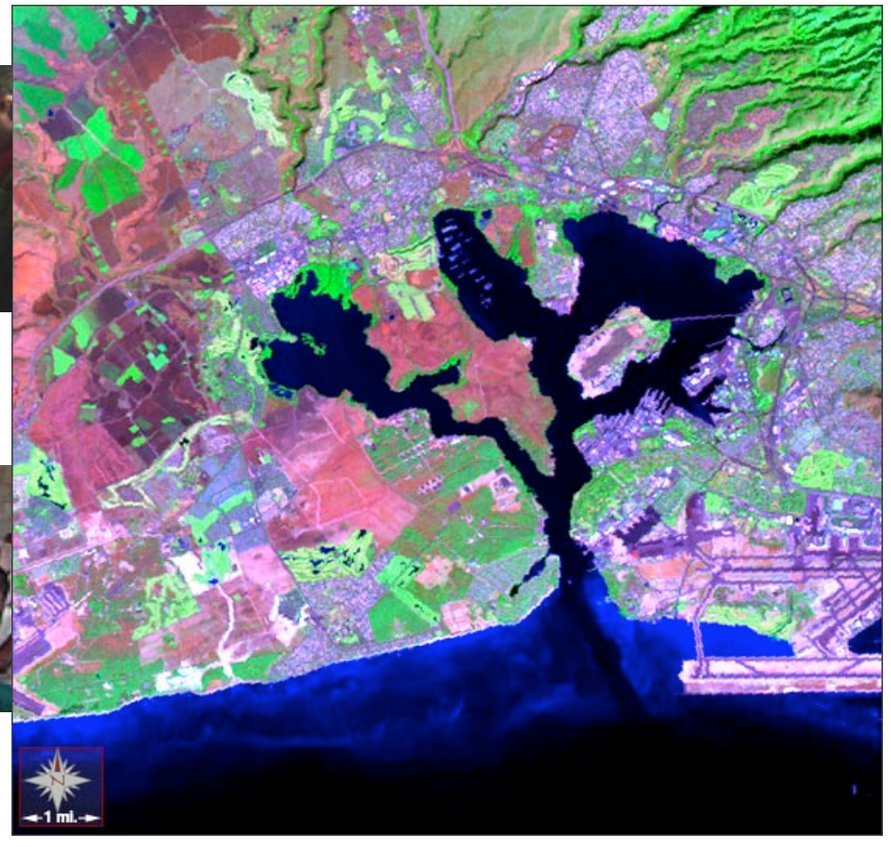
- Digital music, animation, special effects in movies, P2P file sharing, computer games and devices, digital photography and art

Help us connect with each other

- Cell phones, iPods and podcasts
- Social networks like Facebook, MySpace and Second Life
- Google – search the world
- GPS – travel the world

Help the World

- Closing the digital divide, e.g. One Laptop Per Child
- Monitoring the environment

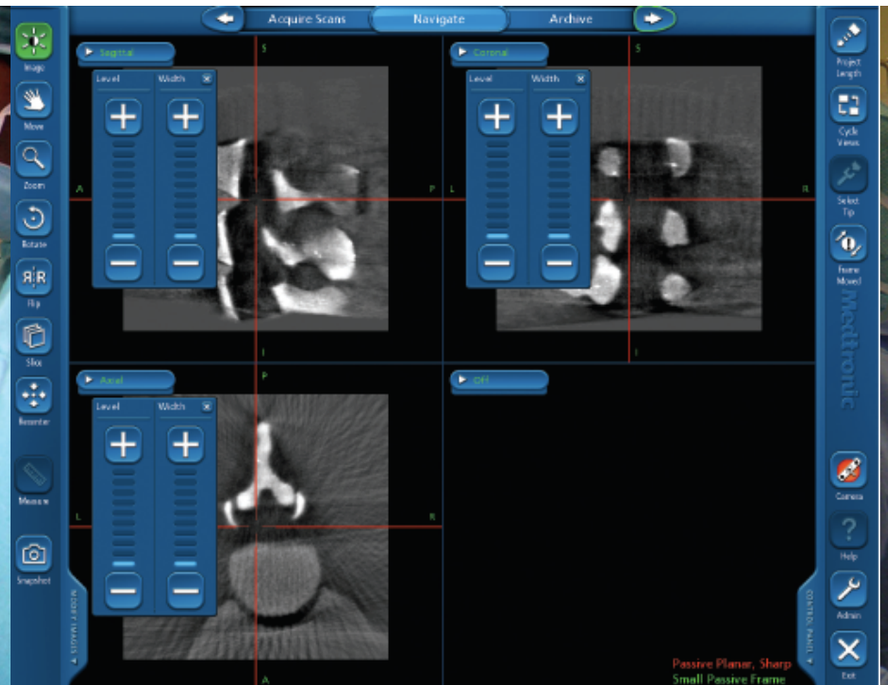


Computing is… People

- Mary Lou Jepson – One Laptop per Child
  - pioneer in developing display technologies
    - flat-panel televisions, holography,
    - laser displays and day-lighting (OLPC)
- built the world's first holographic video system and the largest hologram in the world - a city block in Cologne
- http://laptop.org/vision/people/MaryLouJepsen/

CS is a good start for… Medicine

- Medical robotics, electronic health records, public health and food safety surveillance, smart drug delivery, health informatics



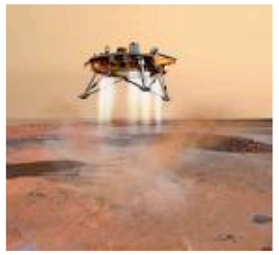
CS is a good start for… Law

- Modern lawyers need to understand the technologies that drive the entertainment industry, the publishing industry and other creative endeavors
- New technologies have created new crimes that need lawyers and law makers who understand the technology and the people behind the technology

Just the Facts…

- High-tech employees earn 45% more than the average Canadian…Statistics Canada
- Jobs in the CS field are international… opportunities in all countries
- Good field for women…diversity is needed!
- A career in CS is good now and in the future!
- A career in CS is secure, safe and exciting

WE ALL



ebay.ca

Mac

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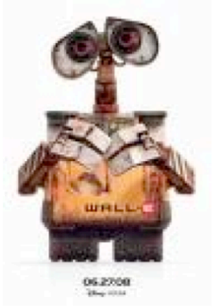
USE

YouTube

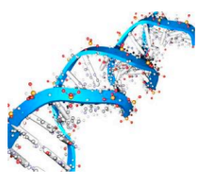


flickr

facebook

COMPUTER

SCIENCE



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EVERY

Google

DAY

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10100101001
01010101010

Diversity

Why should you want to get involved?

High School Courses

http://blue.utb.edu/usslabs/MS%20SEMINARS/workshopweb/images/students-at-computers.jpg

Trivia Question

http://www.democracycellproject.net/blog/archives/question_mark3.jpg

UNIVERSITY of GUELPH

CHANGING LIVES
IMPROVING LIFE

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