

What's Next?

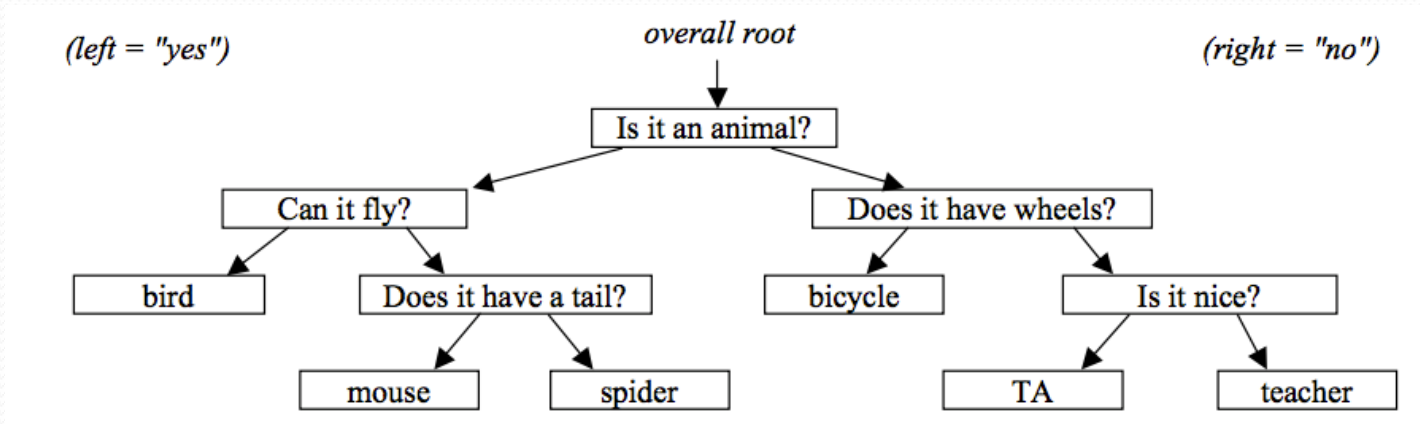
More Computer Science please!

From Here to There

- From here:
 - Programming principles
 - Control structures
 - Procedural decomposition
 - Object-oriented programming
 - If you thought this class was about Java, you completely missed the point.
- To there:
 - 143 – Introduction to Programming 2
 - Data structures
 - 154 – Web Programming
 - And more!

Sample 143 Homework

- Program that learns the game of 20 questions



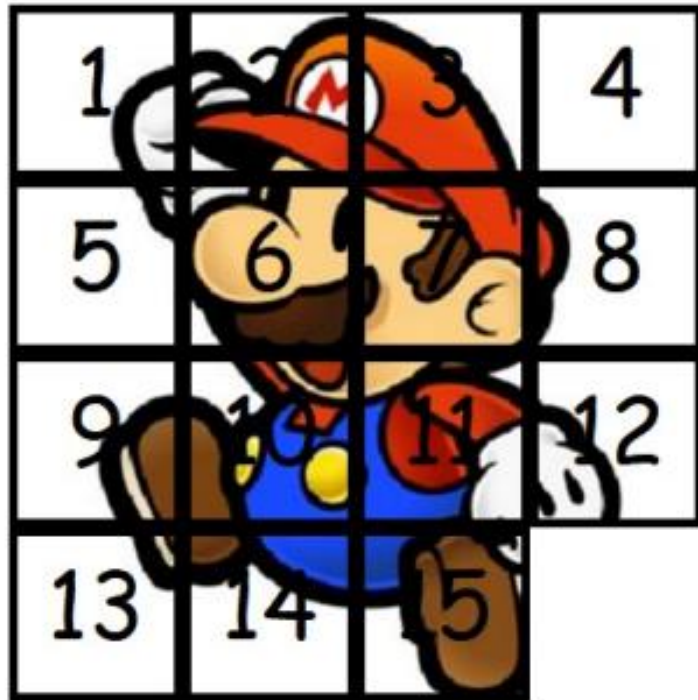
- Random sentence generator

How many do you want me to generate? 10

```
a pretentious dog hit Elmo  
a green green big dog honored Fred  
the big child collapsed  
a subliminal dog kissed the subliminal television  
Sally laughed  
Fred wept  
Fred died  
the pretentious fat subliminal mother wept  
Elmo honored a faulty television  
Elmo honored Elmo
```

Sample 154 Homework

- 15 Puzzle



Shuffle

- nerdLuv Dating Site

Index Page (nerdluv.php) and Overall Site Navigation:

nerdLuvtm
where meek geeks meet

Welcome!



[Sign up for a new account](#)



[Check your matches](#)

and "Check matches" to matches.php (right below):

New User Signup:

Name:
Gender: Male Female
Age:
Personality type: ([Don't know your type?](#))
Favorite OS:
Seeking age: to

Sign Up

Recursion

- How many people are in the room?

Recursion: Towers of Hanoi



Putting it all together

Applications of Computer Science

Where is my bus?



- <http://www.onebusaway.org/>

Radio-frequency identification (RFID)

- How your Husky card bus pass works!
- What else can it be used for?
 - Walmart warehousing



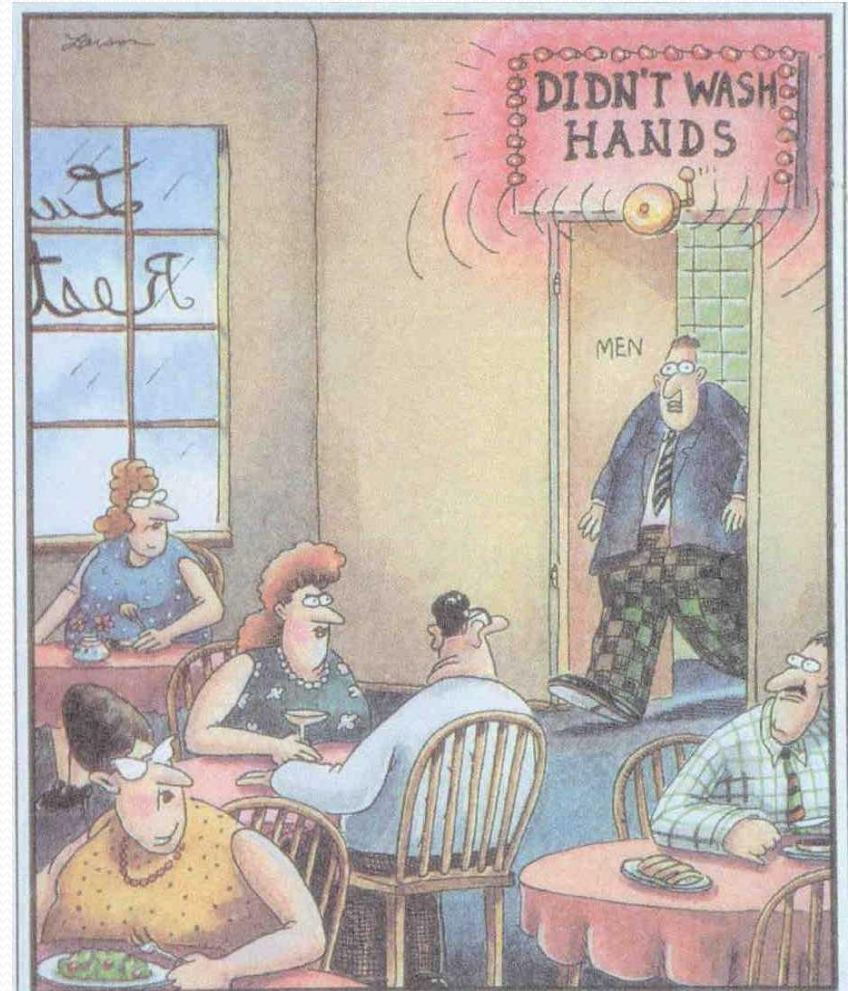
Radio-frequency identification (RFID)

- How your Husky card bus pass works!
- What else can it be used for?
 - No more checkouts?



Activity recognition

- Applications to elder care



Medical diagnoses and spam filters

- What do they have in common?

Medical diagnoses

Breathlessness

Coughing

Heartburn

Tremors

Rash

Headaches

High fever

Sore throat

Runny nose

Spam filters

foreclosure

Nigeria

FREE

oil

V1agra

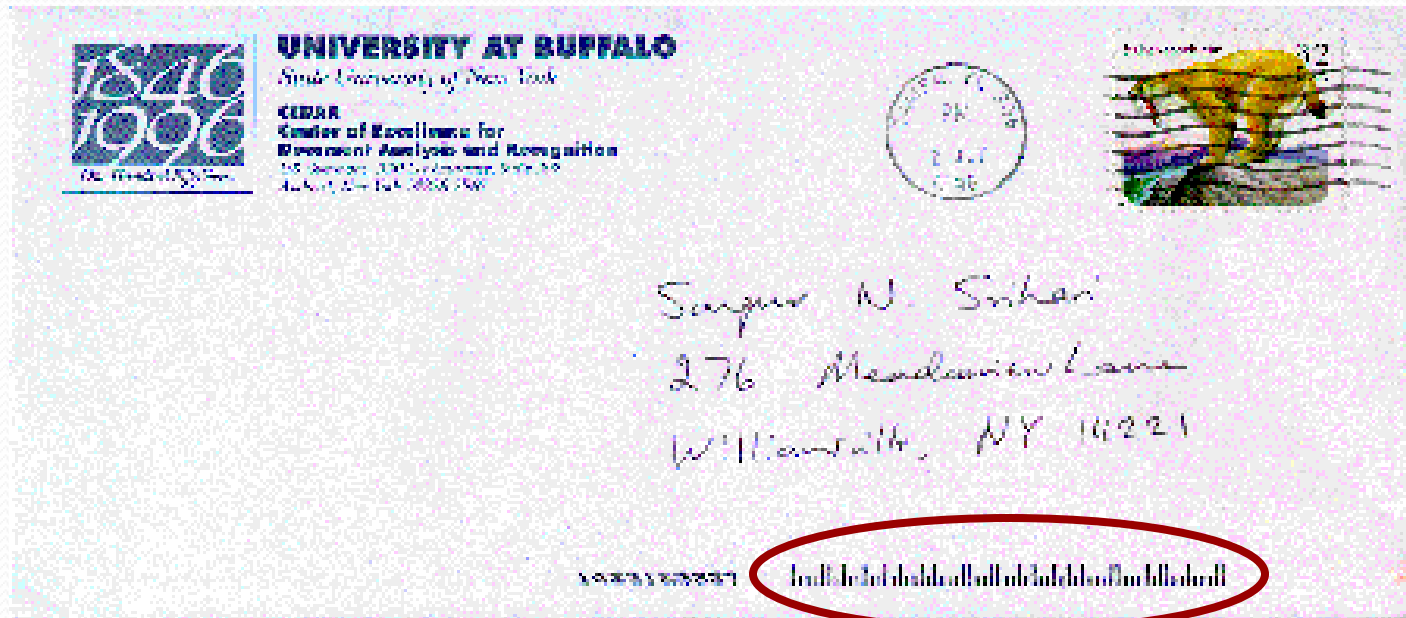
enlargement

lower your interest

affordable meds

Same technology sorts your mail!

- Over 97% of letter mail is sorted automatically.



- <http://www.nytimes.com/2013/05/04/us/where-mail-with-illegible-addresses-goes-to-be-read.html>

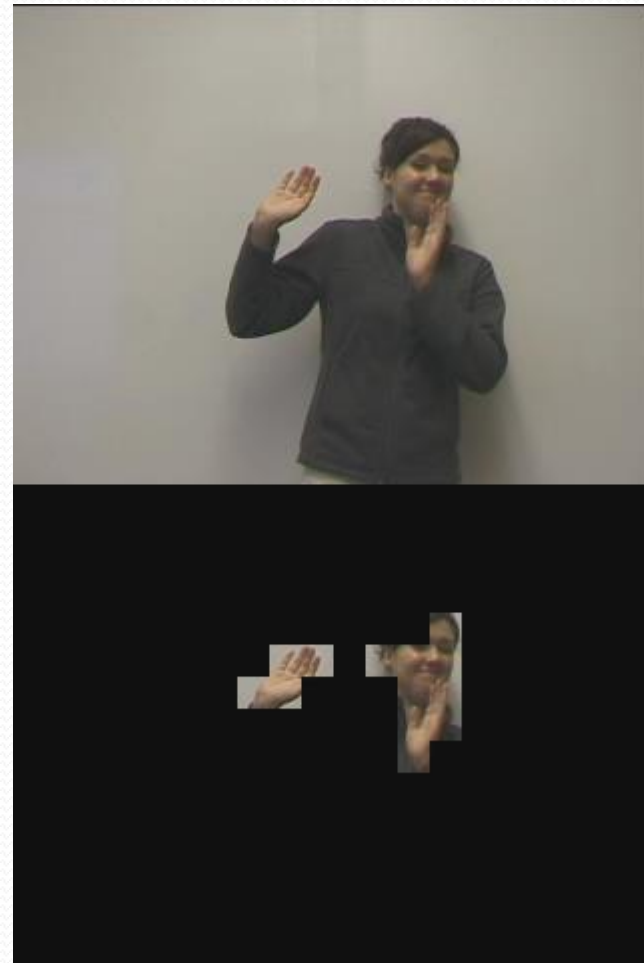
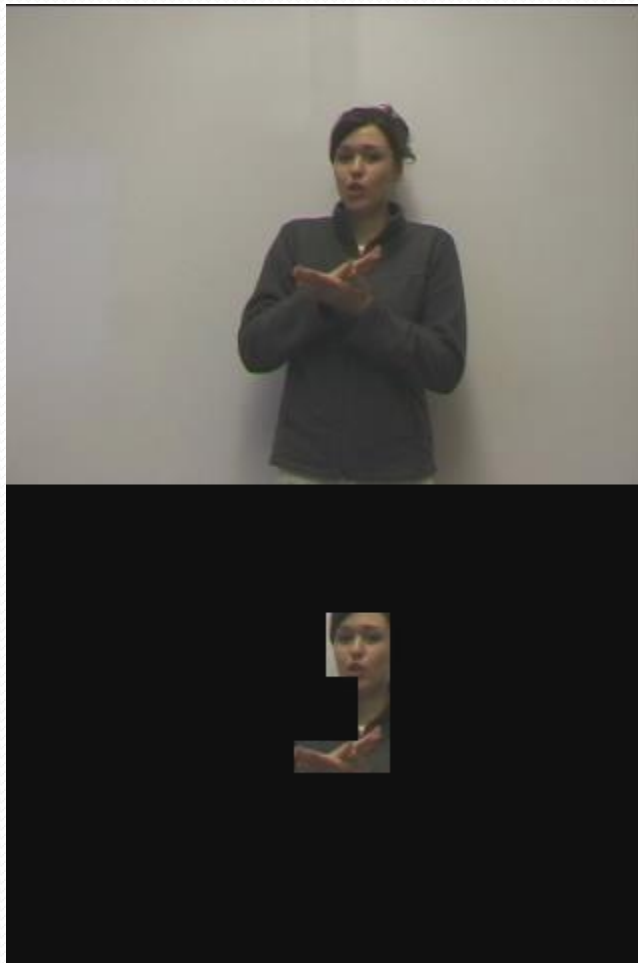


What about sending video?



- A picture is worth a thousand words (literally).
- Cell networks can't deliver video fast enough in real-time. What now?

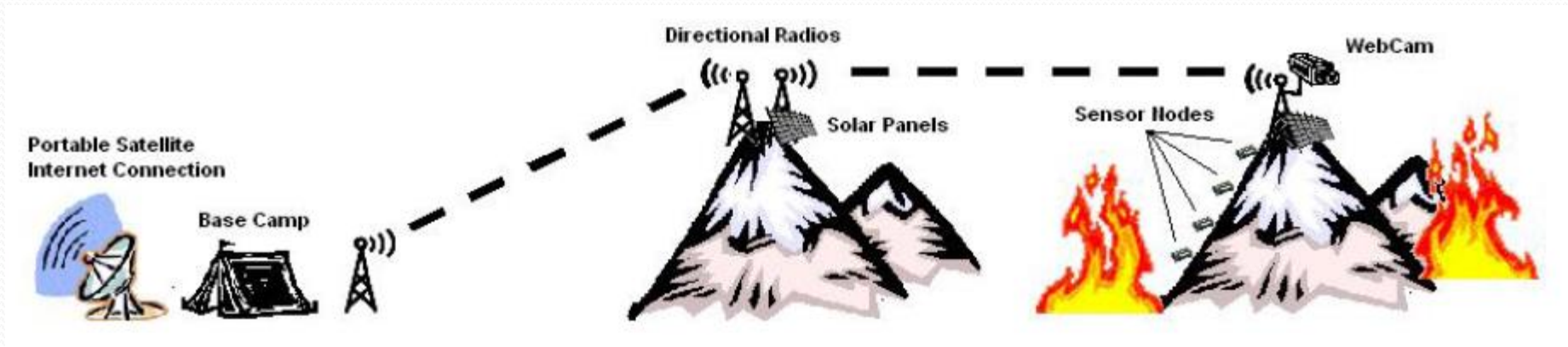
It don't matter if you're black or white



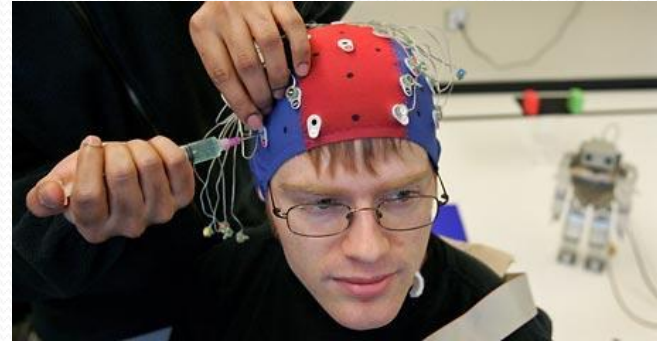
- Check out tomorrow's exploration session!

Sensor networks

- Environmental monitoring
 - Tornadoes (Twister, 1996)
 - Battling forest fires (University of Colorado)



Mind control



- <http://www.youtube.com/watch?v=qEv820jJgDY>
- <http://www.youtube.com/watch?v=HR0NBHJWdAU>

Improving healthcare



3G 12:07 PM
ODK Collect > eIMCI by D-Tree

Ask about main symptoms

- Cough or difficult breathing
- Diarrhea
- Fever
- Ear problem
- Other/None of the above

- <http://tedxtalks.ted.com/video/TEDxSeattle-Gaetano-Borriello-0>

From paper medical records...



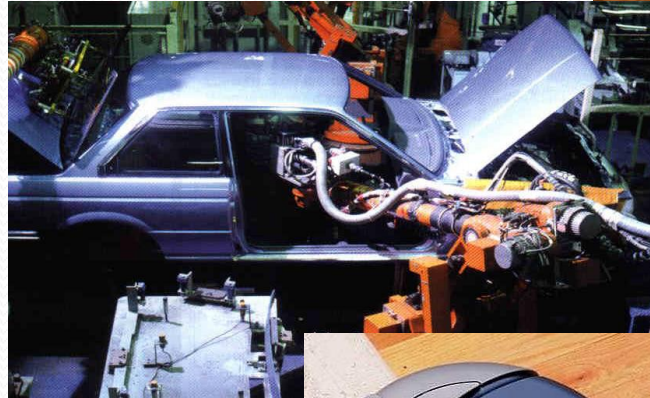
... to electronic medical records



- <http://www.openmrs.org>

What can robots do?

- Toys
- Build cars
- Vacuum rooms
- Surgery
- Search and rescue
- Elder care
- Space exploration
- ... and more!

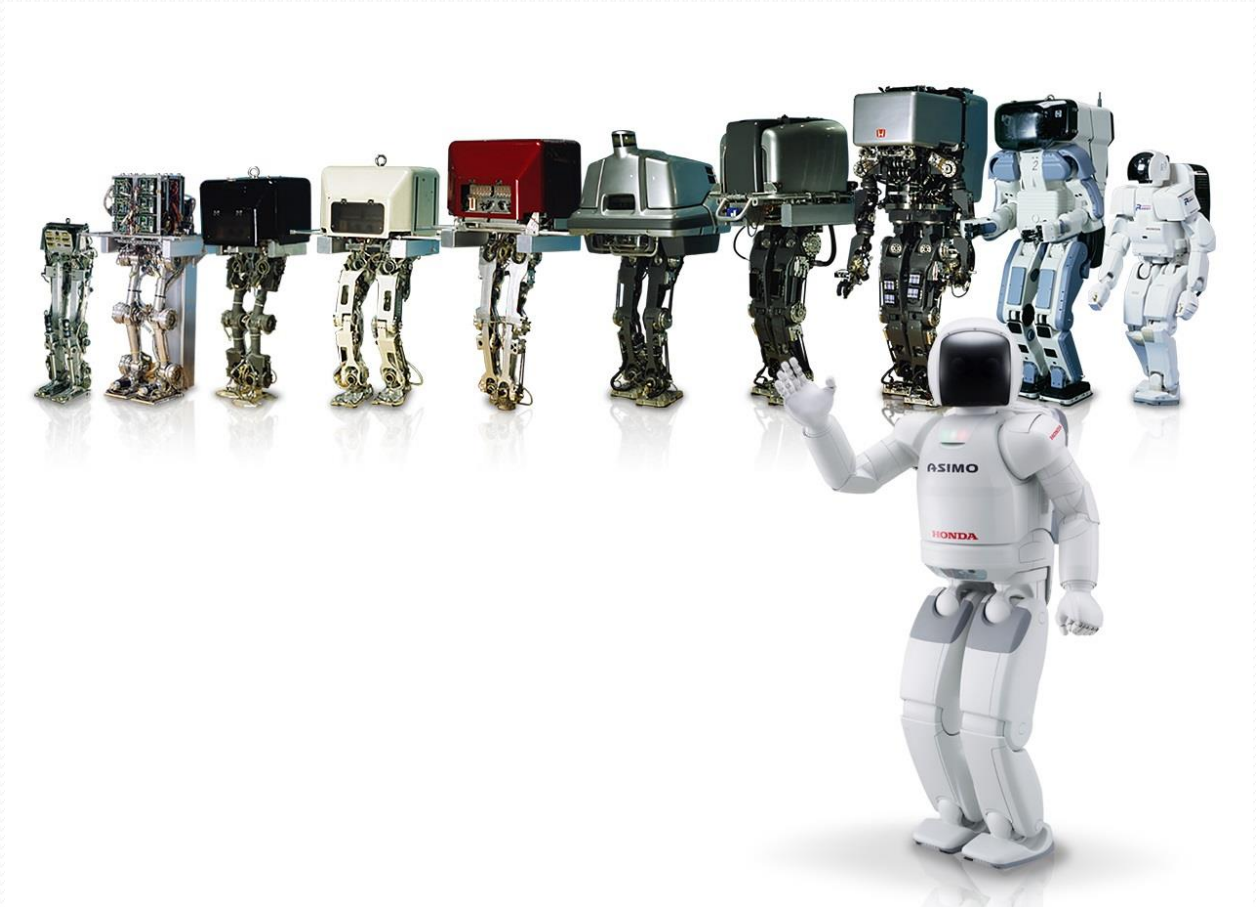
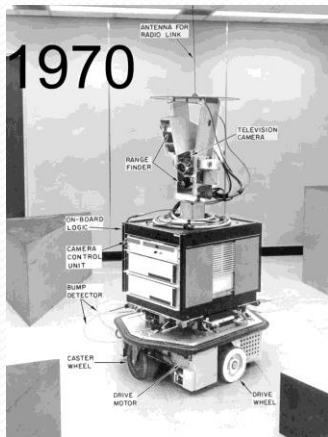


What goes into the Mars Rover?

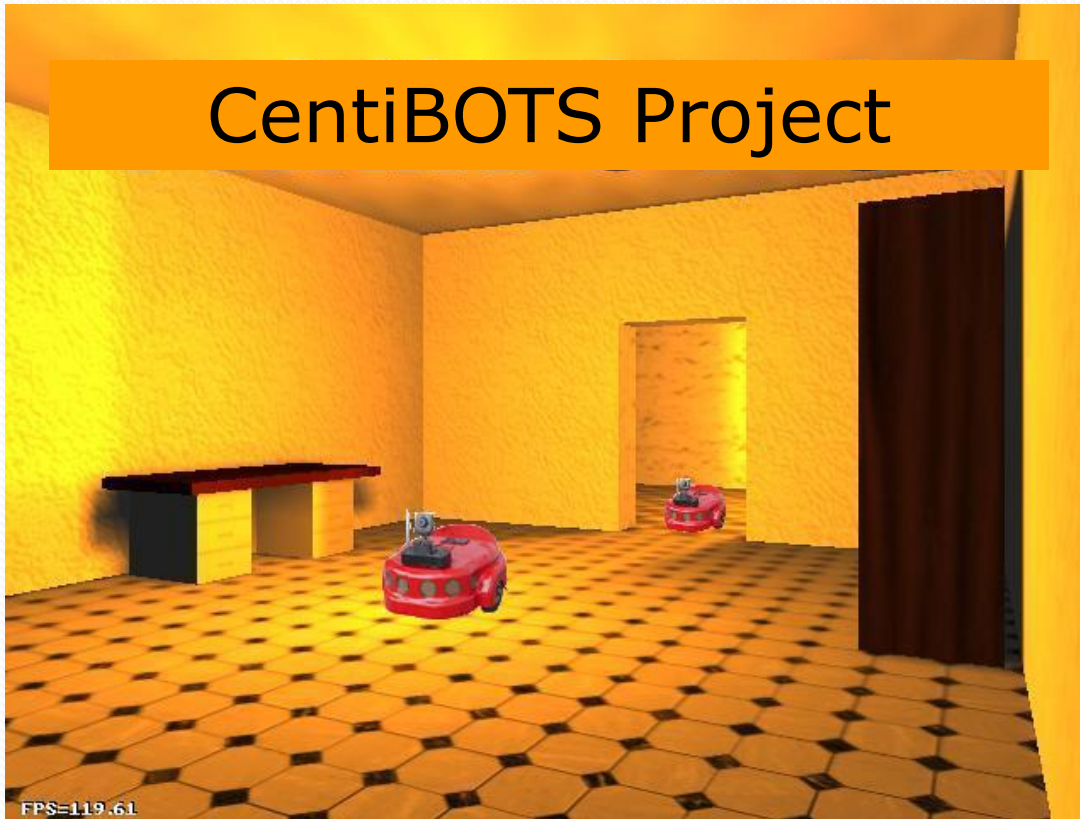
- Computer vision: Interpreting pictures
- Kinematics: Move the rover, mechanical arm
- Artificial intelligence: Understanding, autonomy
- Physics: Power supplies, power regulation
- Electrical engineering: robot's processor
- Computer science: software to control everything!
- Geology: Rock sampling tools

From Shakey to ASIMO

- Shakey: <http://www.youtube.com/watch?v=RhrLHkVuerc>
- ASIMO: <https://www.youtube.com/watch?v=NZngYDDDFW4>



More robots!



- Exploration and surveillance of large indoor environments
- Joint project with SRI International

Even more robots!



How many robots?

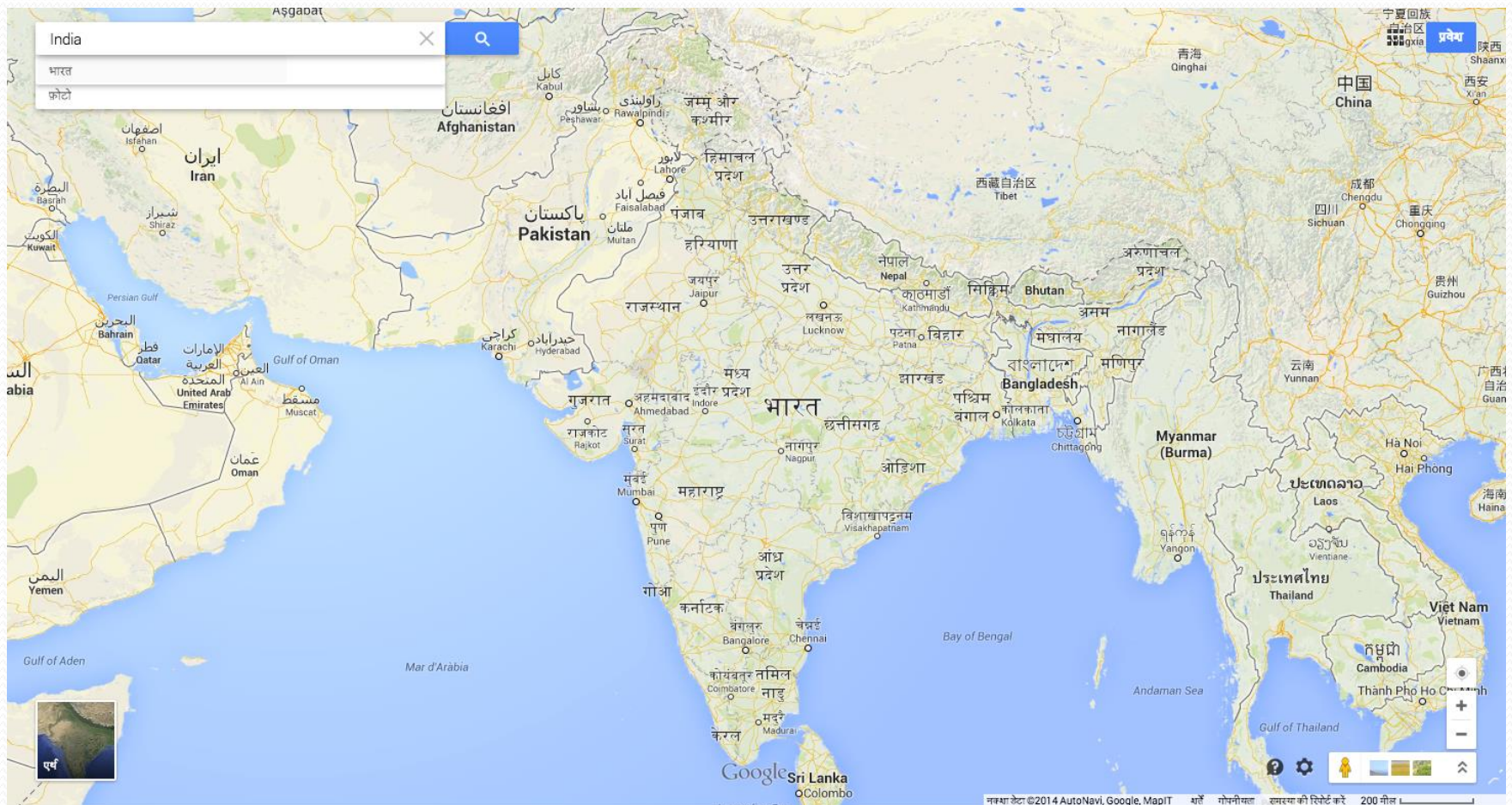




Labels in Google Maps

- What should be visible at each zoom level?
 - Space Needle is probably more important than University Teriyaki.
- What if we don't have the label in your language?

Making the world accessible



Not all about computers



Geopolitics is crazy



The whole world is crazy!

- Crazy borders:

- <http://en.wikipedia.org/wiki/Baarle-Nassau>
- http://en.wikipedia.org/wiki/Roberts_Point

- Crazy laws:

- <http://www.telegraph.co.uk/technology/google/10862321/How-North-Korea-is-more-open-than-South-Korea.html>

- Crazy disputes:

- http://en.wikipedia.org/wiki/Isla_Perejil
- <http://www.cnn.com/2012/05/17/world/meast/iran-google-gulf/>