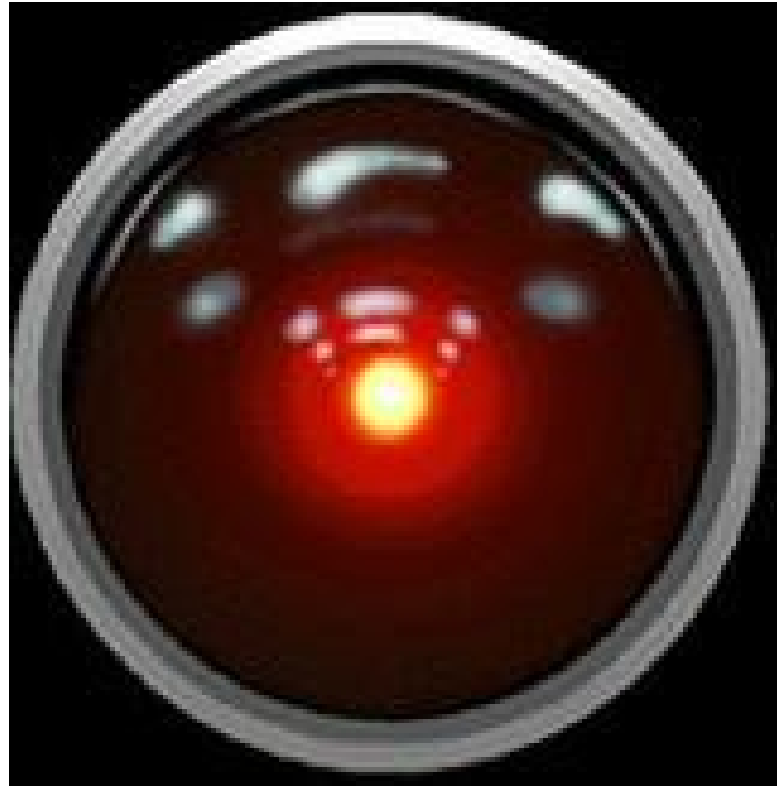




CS 378: Autonomous Intelligent Robotics

Instructor: Jivko Sinapov

<http://www.cs.utexas.edu/~jsinapov/teaching/cs378/>

Announcements

Robotics Study



Readings for this week

Stoytchev, Alexander. "Some basic principles of developmental robotics." *Autonomous Mental Development, IEEE Transactions on* 1.2 (2009): 122-130.

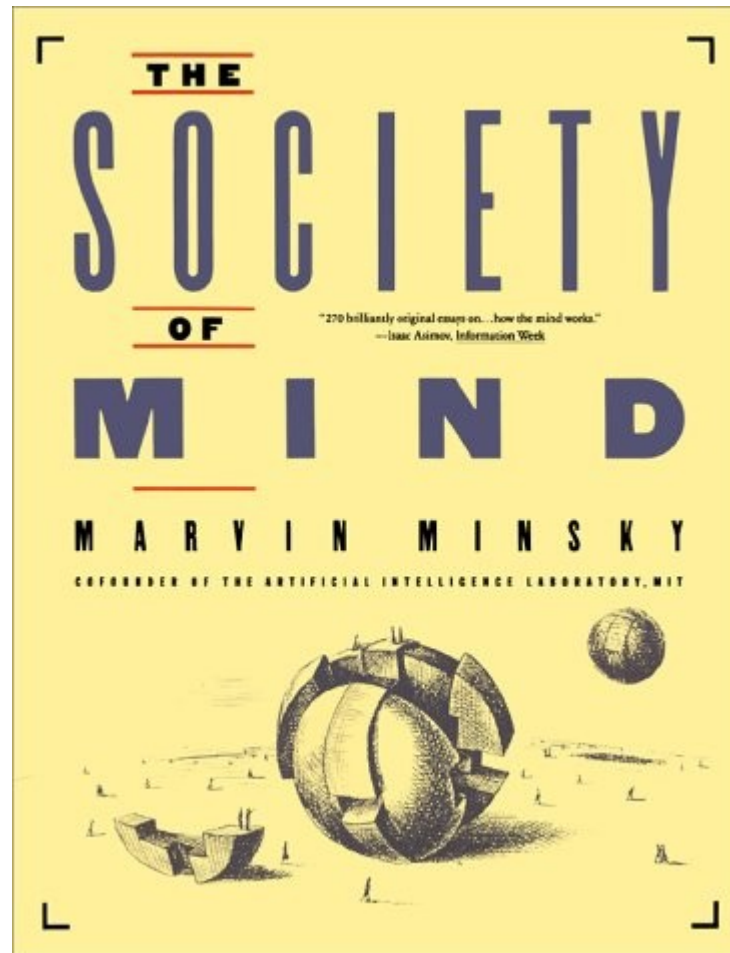
Minsky, Marvin. "Steps toward artificial intelligence." *Proceedings of the IRE* 49.1 (1961): 8-30.

Veloso, Manuela, et al. "CoBots: robust symbiotic autonomous mobile service robots." *Proceedings of the 24th International Conference on Artificial Intelligence*. AAAI Press, 2015.

Marvin Minsky (1928-2016)



Marvin Minsky (1928-2016)



Readings for this week

Reading response posts are due before class
on next Tuesday

Facebook Group

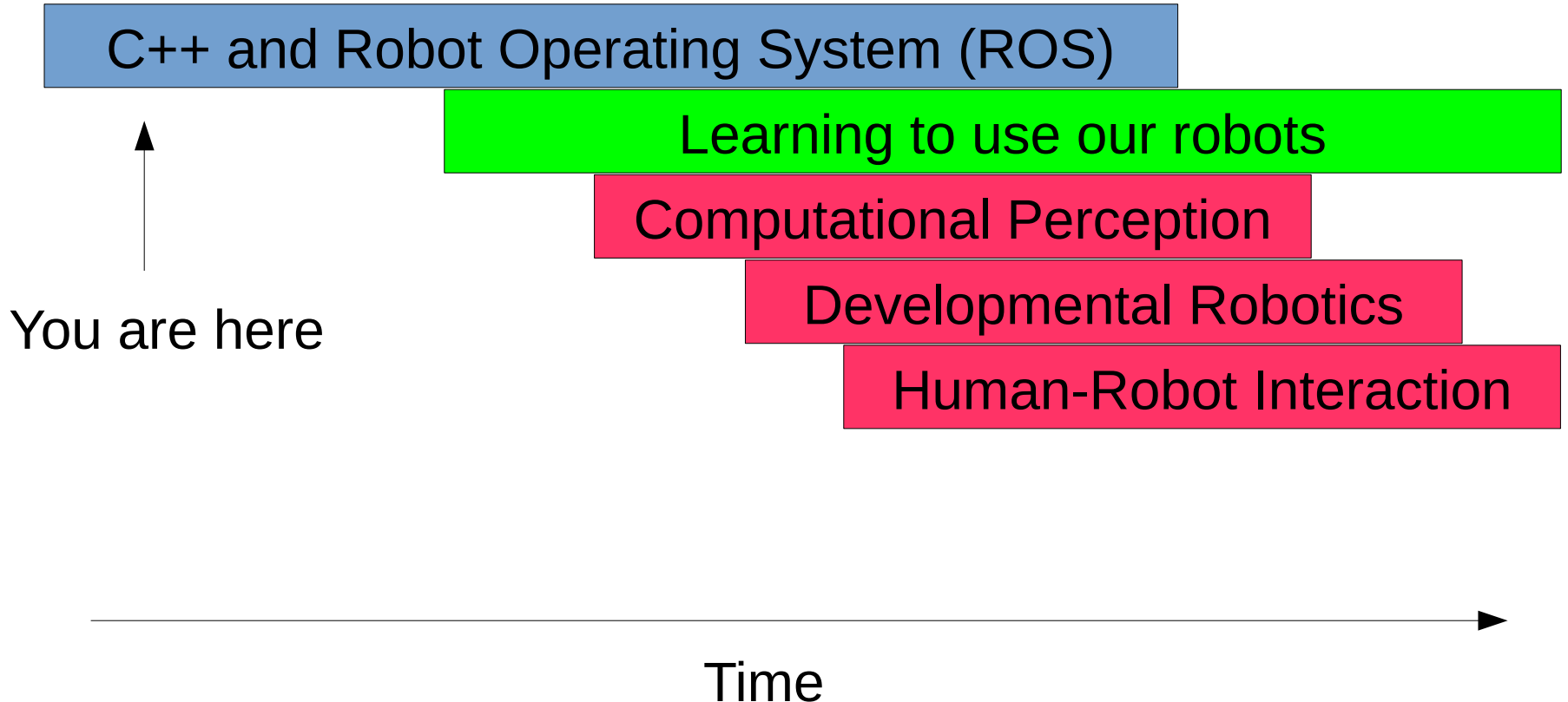
<https://www.facebook.com/groups/420454514730323/>

Send me an email with your facebook name or email and I'll invite you

Homework 0

Get access to a 64bit Ubuntu
14.04 LTS Linux Machine

Semester Schedule

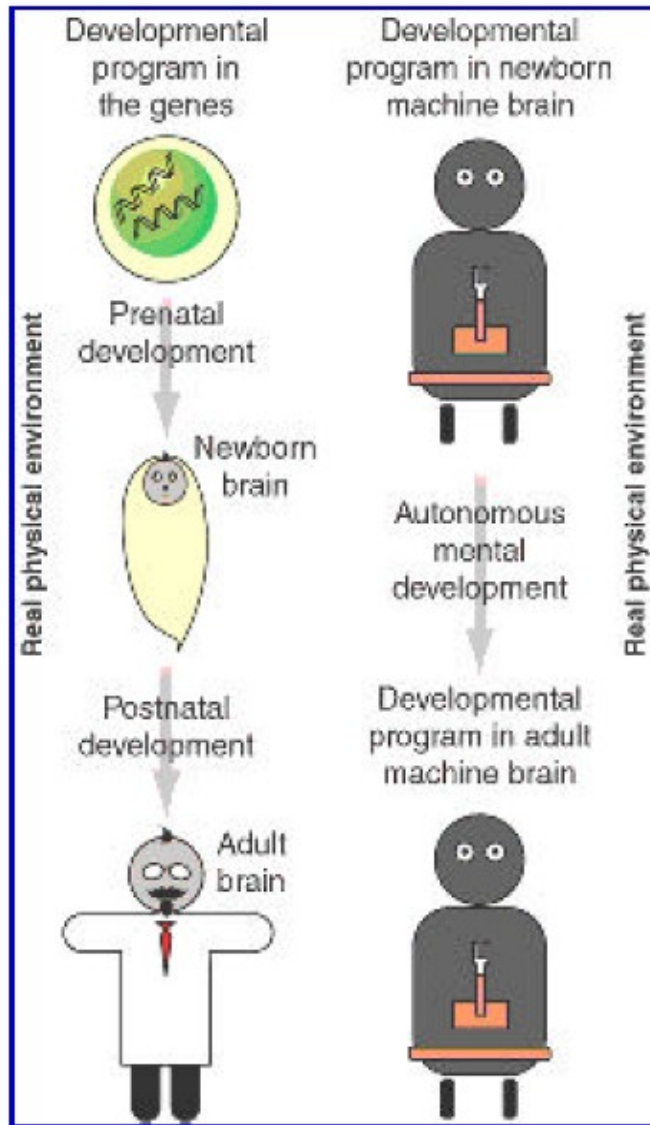


Today...

- Reading Discussion
- Objects in C++

Reading Discussion

“Autonomous Mental Development by Robots and Animals”



“Autonomous Mental Development by Robots and Animals”

“Overall I found that the idea of having machines with a developmental stage very interesting even though it seems hard to implement it and would require building off of the "traditional" ways stated in the paper. This idea contains a rather unique and promising path for robotics to go down in the future if accomplished.”

“Autonomous Mental Development by Robots and Animals”

“This paper definitely presented the most novel ideas of the three, but also had the least actual concrete information (unsurprising, of course, as it came from an online journal of some sort).

...

A few pioneering examples in the field were presented, but the paper does not go into great depth about the complexities of the implementation, its feasibility, and just how important aspects of human development, such as basic instincts and a very powerful sense of intuition/learning ability, would be designed and implemented.”

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“Autonomous Mental Development by Robots and Animals”

What's missing in the paper is the “how” of autonomous mental development.

Why would that be?

“Computer Seeing People”

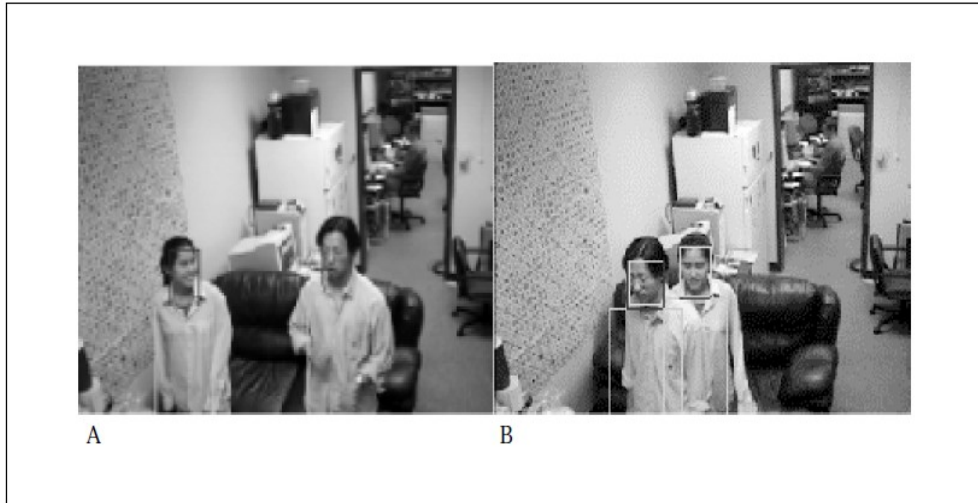
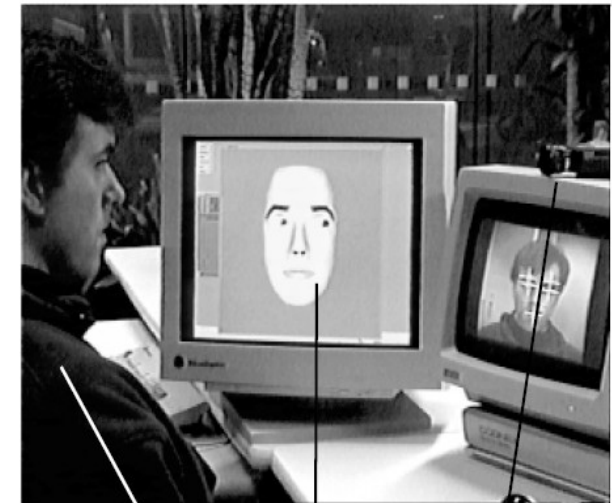


Figure 3. Results of a Multiple-People, Multiple-Camera Tracking.

Frame 33

Frame 100



A

User

Graphics Display

Camera



Figure 7. Recognition of Activities around a Workstation.

“Computer Seeing People”

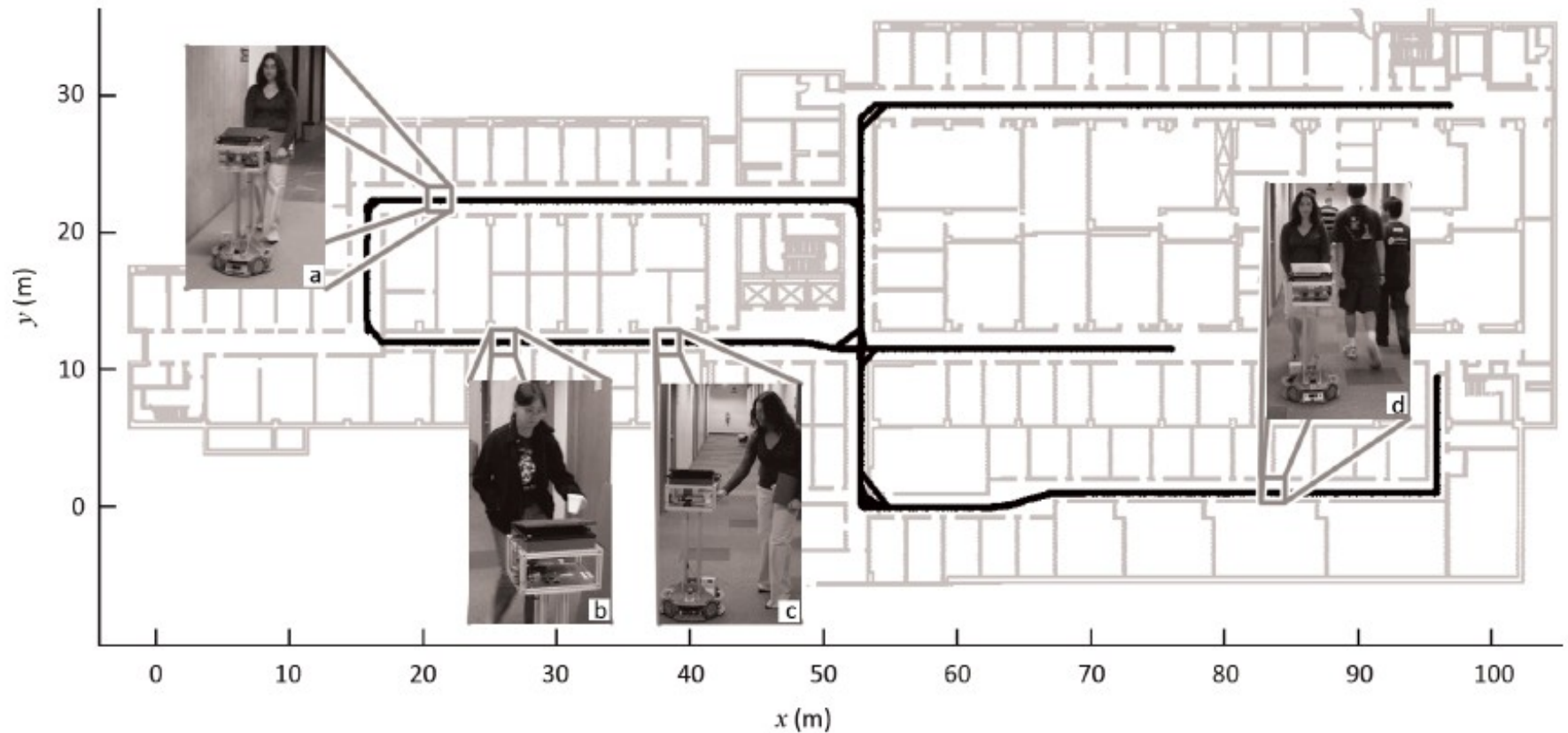
“The most striking aspect about this paper were all of it's noticeable anachronisms - references to 180 Mhz processors, Intel Pentiums (and not even Pentium II's), extremely small resolutions like 180 x 160 and 480 x 360, and papers from 1996 and 1997. Much of the context of the paper is based on the large advances in computing for it's time (1999, which is not a full 17 years ago), which is interesting because computing power has increased ~50x since then - a fact which makes me very curious about how our significantly better computational abilities and significantly larger data sets have changed the field (hopefully, I'll learn more through papers about this throughout the year).”

“Computer Seeing People”

“1)How do learning algorithms work (such as the ones used in gesture interpretation)? I am aware that there is a whole field of study dedicated to machine learning, but how does one teach a computer to solve a problem more efficiently?

2) Is the FERET program still the standard for measuring the robustness of facial recognition software or has something superseded it? If so, what makes it a reliable test case and if not, what made it inadequate?”

“An Effective Personal Mobile Robot Agent Through Symbiotic Human-Robot Interaction”



“An Effective Personal Mobile Robot Agent Through Symbiotic Human-Robot Interaction”

“... was my favorite reading because it introduced a new notion that robots don't have to be entirely self-sufficient like HAL from 2001: Space Odyssey. It seems more practical and in a way more timely efficient for the robots to request some information from humans to complete a certain task rather than the robots figuring out everything on their own. “

“An Effective Personal Mobile Robot Agent Through Symbiotic Human-Robot Interaction”

“Would these learning robots give way to robots that don’t have to be taught? I can see some people liking that at first (novelty and whatnot), but can’t see it being an ultimately marketable concept.”

“How real are the “real” visitors? If this was a robotics conference, there was probably a considerable amount of bias towards robots there. Why did they place such emphasis on having the robot get coffee when clearly it could never do such a thing?”

Back to C++

Q & A

“What is a vector?”

Objects in C++

Additional C++ topics

- Pointers
- Objects in C++

THE END