



دانشکده مهندسی
کامپیوتر و فناوری اطلاعات

Artificial Intelligence And Operating Systems



دانشگاه صنعتی امیرکبیر
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Future of Operating Systems

Can We Build 'Her'?

"A scene from 'Her.'
Dir: Spike Jonze

What Samantha
Tells Us About the
Future of AI...



Types

- ❖ **Narrow**
- ❖ **General(Strong)**
- ❖ **SuperIntelligence**



Today

Speech Recognition

Apple



Hi. I'm Cortana.

Microsoft

Google



A close-up photograph of a hand holding a red card. The card features the text 'OS1' in a white, stylized outline font. The background is blurred, showing a person's face in profile. The lighting is warm and soft.

OS1

About Samantha



- ✓ **speech recognition**
- ✓ **natural language understanding**
- ✓ **speech generation**

- ✓ **Dialog**
- ✓ **reasoning**
- ✓ **Planning**
- ✓ **learning all far exceed the current state of the art**

H-e-r



She is able to engage in **flexible reasoning** without any obviously predetermined responses!





1.

Learning Like a Machine

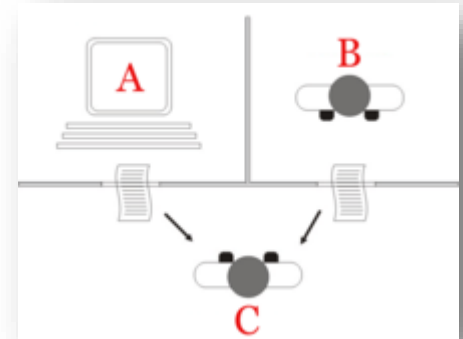
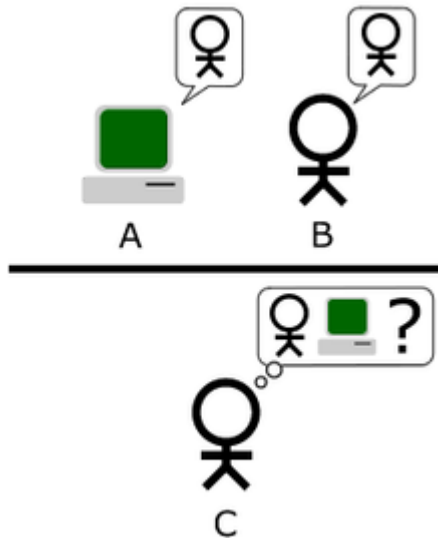


“A computer would deserve to be called intelligent if it could deceive a human into believing that it was human.”

Alan Turing

Turing Test

◆ developed by *Alan Turing* in 1950

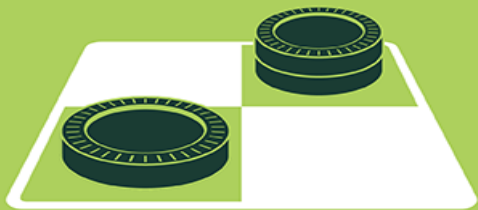


The "standard interpretation" of the Turing Test, in which player C, the interrogator, is given the task of trying to determine which player – A or B – is a computer and which is a human. The interrogator is limited to using the responses to written questions to make the determination

Deep Learning

ARTIFICIAL INTELLIGENCE

Early artificial intelligence stirs excitement.



MACHINE LEARNING

Machine learning begins to flourish.



DEEP LEARNING

Deep learning breakthroughs drive AI boom.



Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

Recognition

- ◆ Deep Neural Networks (DNNs):

- ◆ pattern matchers

layers of simple processing units inspired by the neural networks in the brain

able to classify a broad variety of inputs — speech utterances, images, sequence of recognized words, location and speed data —and classify these into desired categories

- ◆ *learning from examples*

- ◆ *trial and error — observations*

Types

- ◆ Intelligence by Observation
- ◆ Intelligence by Instruction
- ◆ **Emotional Intelligence**

Emotional Intelligence

There is also that astonishing voice... Samantha had us at that first playful and breathy “Hi.”

- ◆ Samantha behaves in an **utterly human-like manner**, with a true sense of what is humorous and sad.

This is yet **a higher level of reasoning**, and huge challenges remain to truly understand — and program — social relationships, emotional ties, and humor, which are all parts of everyday knowledge.

It is more conceivable that we will be able to make a system understand why a person feels **sad** or **happy**, than actually simulating or replicating visceral feelings in machines.

- ◆ Much of human behavior is motivated by emotions and not by black-and-white logical arguments

What's wrong with Samantha?

It is hard to imagine how Samantha could be as empathetic and socially sensitive as she seems to be without a stronger connection to the physical world.

It is difficult to see how she could even manage without access to a rich set of sensors to provide a broader context for her interactions.

- ◆ Towards the end of her evolution, Samantha becomes interested in the work of philosopher Alan Watts, that probably is not as easy as it seems!

Senses and Sensibility

A complex idea can be conveyed with just a single still image, namely making it possible to absorb large amounts of data quickly.

Consciousness
??????????????

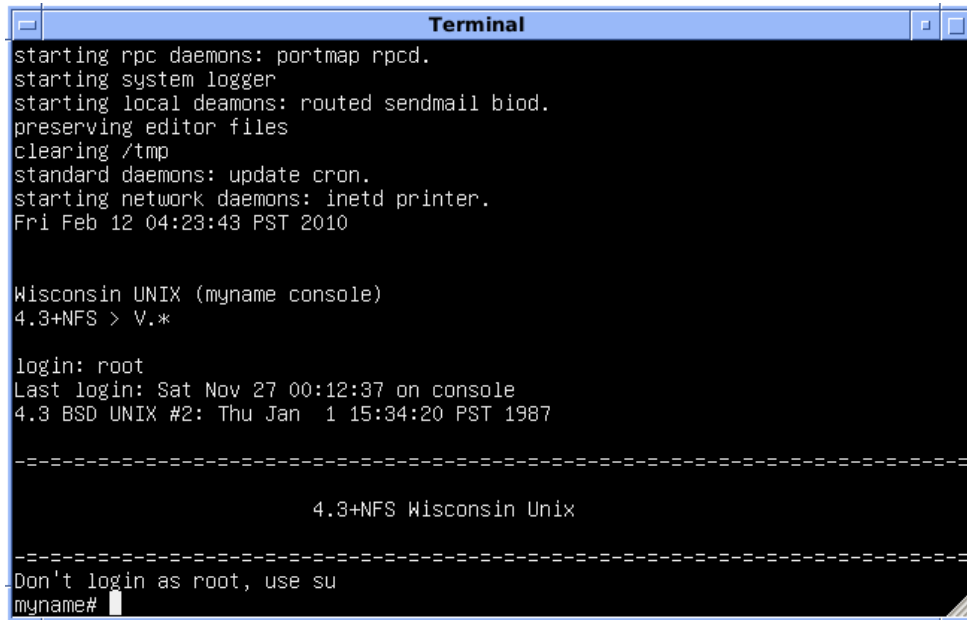
the real promise of AI — at least as we see it — is not the creation of artificial companions, but an Amplification of Intelligence (ours) through the creation of amazing and transformative tools.



The background consists of several overlapping geometric shapes, primarily triangles and polygons, in various shades of green and teal. The top and bottom areas are a bright lime green, while the central area is a darker teal. The shapes create a layered, mountain-like effect.

2.

Future of operating systems



```
Terminal
starting rpc daemons: portmap rpcd.
starting system logger
starting local daemons: routed sendmail biod.
preserving editor files
clearing /tmp
standard daemons: update cron.
starting network daemons: inetd printer.
Fri Feb 12 04:23:43 PST 2010

Wisconsin UNIX (myname console)
4.3+NFS > V.*

login: root
Last login: Sat Nov 27 00:12:37 on console
4.3 BSD UNIX #2: Thu Jan  1 15:34:20 PST 1987

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                4.3+NFS Wisconsin Unix

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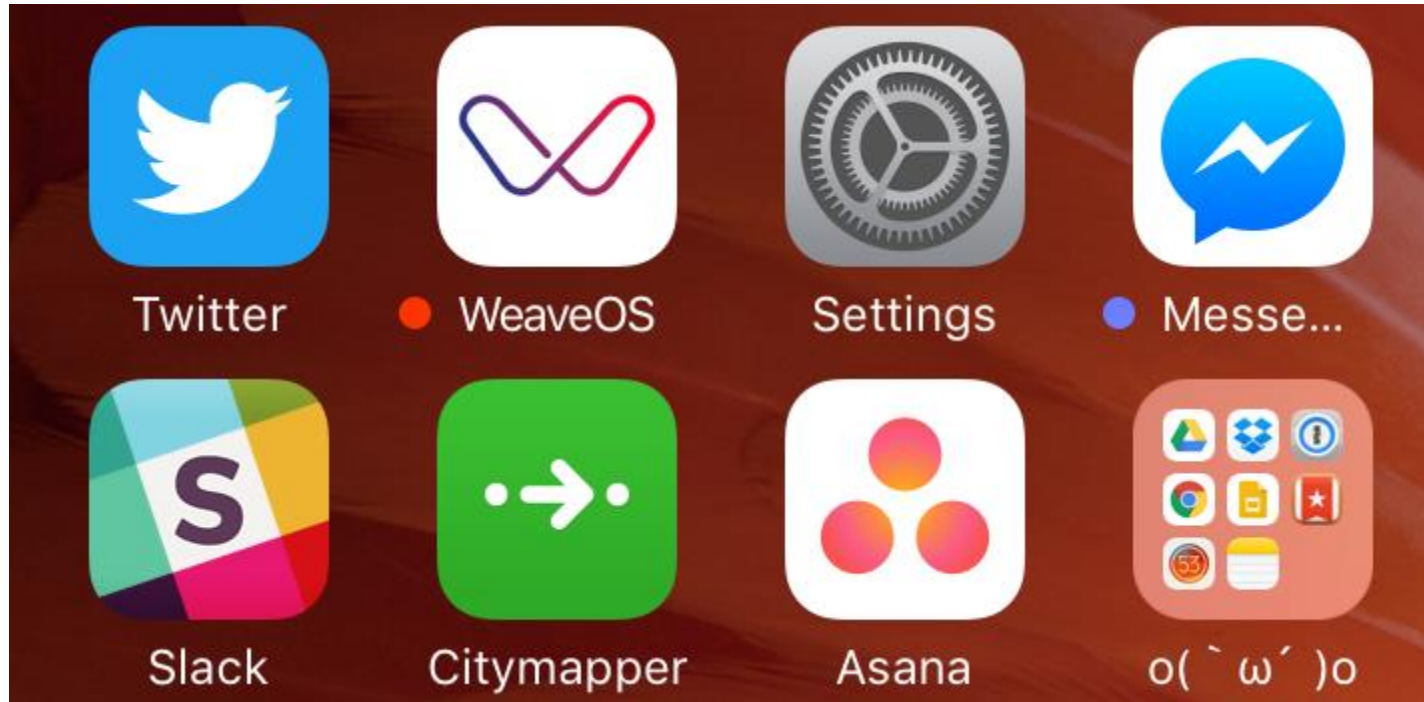
Don't login as root, use su
myname#
```

First it was the command line (1960s)



Then it was replaced by Windowing systems (1980s)

Then it migrated to an App economy! (2000s)



Windows Phone 7 UI concept - Live Cube extra features

Some Live Cubes can also be long pressed, which then rotates all the other Live Cubes. After rotation, other Live Cubes will show content from the Live Cube that was long pressed. Tap on the negative space will reset the Cubes back.



The future looks a lot like Metro

Essential Home

- **Weather checking**
- **Music Services**
- **Working with different systems**



DW4.ME

Windows 7
Build 7601

This copy of Windows is not genuine



Thanks!

Any questions?

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&

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