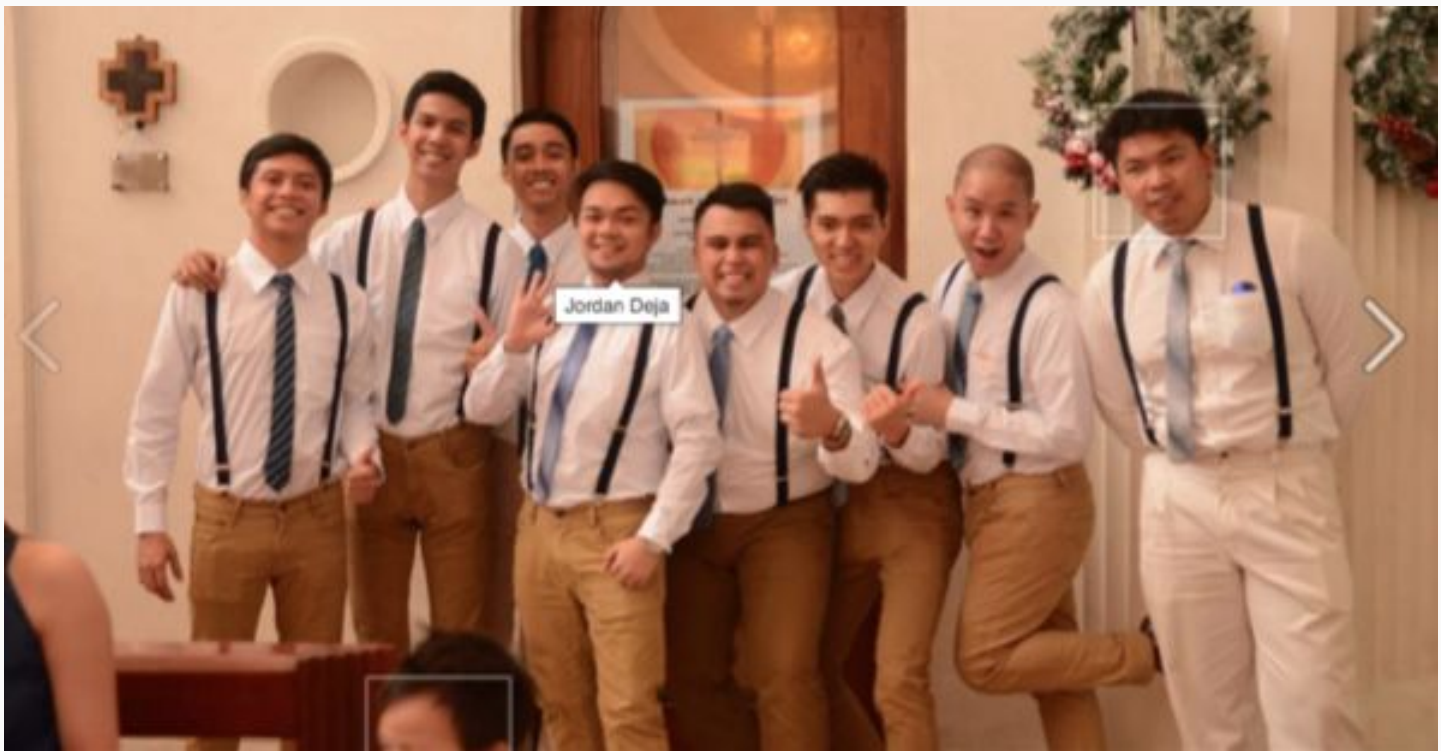


Machine Learning & A. I.

October 01 2016





Hi, I'm **Jordan!**

I'm part of a lab where we do research in
machine learning and hci



CENTER FOR
COMPLEXITY &
EMERGING
TECHNOLOGIES

why talk about Machine Learning?

- computer engineers **need** it
- Beyond sensors and IoT there's gonna be a **model** for it

Machine Learning

A man in a suit and glasses is seated at a desk, interacting with a large, vintage computer system. The system features a large monitor displaying a chessboard and various control panels with numerous buttons and switches. The background is filled with large, circular reel-to-reel tape drives, suggesting a mid-20th-century computing environment. The entire image is overlaid with a semi-transparent green filter.

Is a subfield of computer science that gives the computers the ability to learn without being explicitly programmed - Arthur Samuel



where has
Machine Learning
been applied?

1994

ALVINN

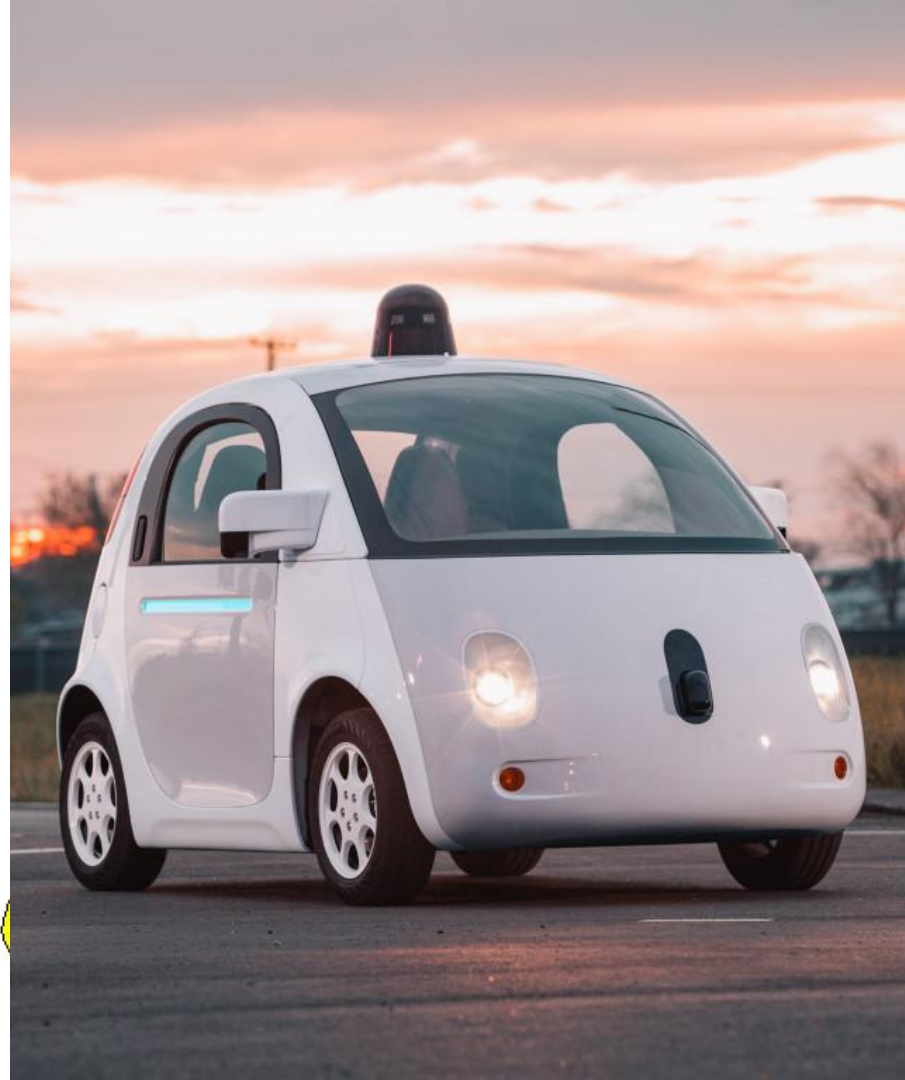
- Automated Land Vehicle with Neural Network
- First vehicle to cross the US Coast in 6 days totally unmanned



2016

Google Self Driving Car

- Integrates cloud, gps and video and image processing



1997

Deep Blue

- Deep Blue II defeated Gary Kasparov, long time Chess Grandmaster

May 11th, 1997

Computer won world champion of chess

(Deep Blue)

(Garry Kasparov)



(Reuters = Kyodo News)

2016

Google DeepMind wins Alpha Go



so now we ask..

how can computer
engineers make
use of machine
learning?

On images translation

- Instantly translate foreign words into your preferred language



On surveying “drones”

- Like the ADARNA project for aerial surveying, remote navigation and monitoring



**The ADARNA Project
Computer Technology Department
College of Computer Studies
De La Salle University**

Or better yet

Sky-catch drones



See what NASA did

Used Satellites to find Mayan ruins

Landsat Thematic Mapper (30m) vs. Ikonos (1m)



Remember the PH satellite?

Diwata?



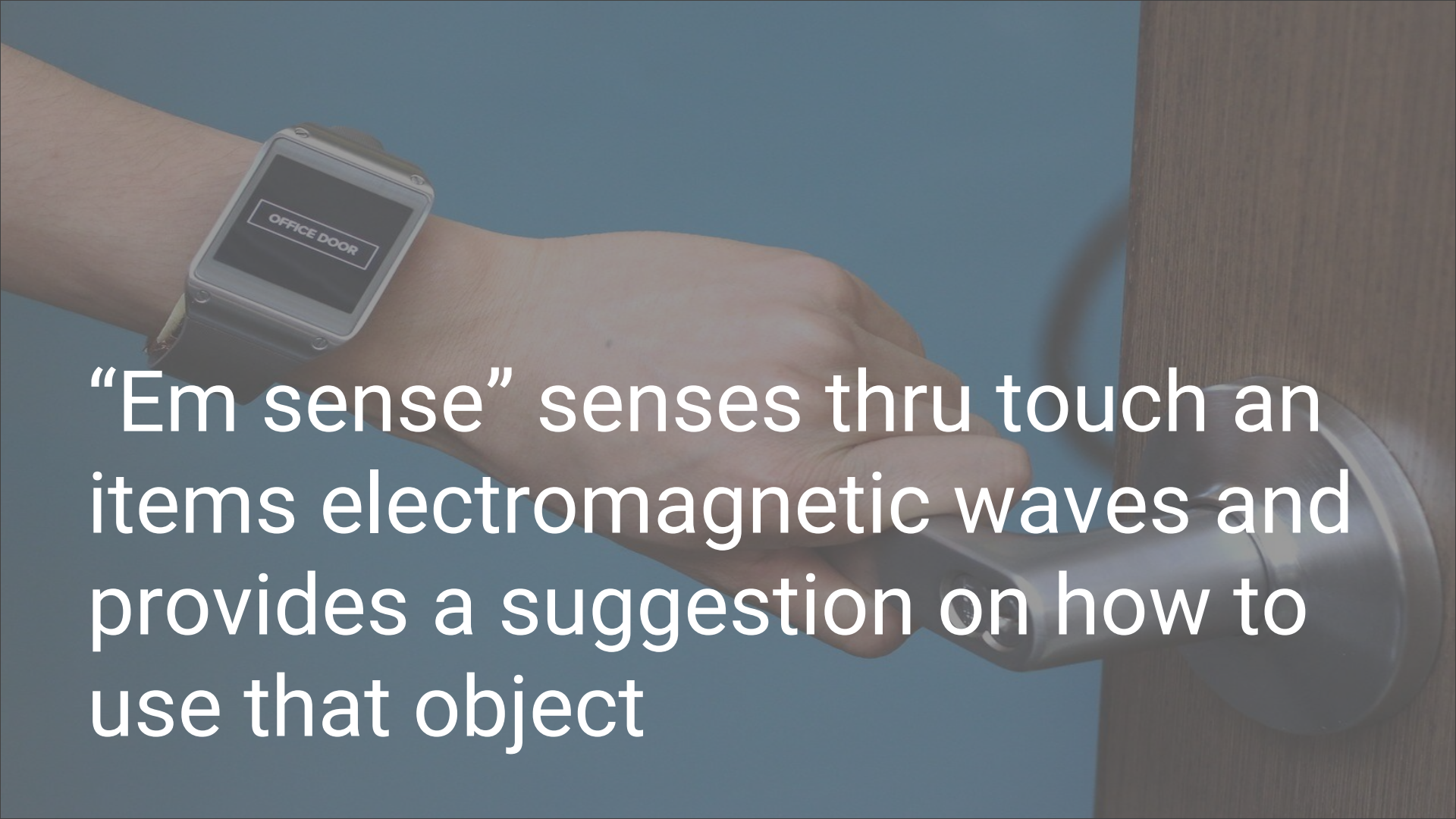
Processing:

Machine learning can enable us to integrate **hardware** with **intelligent code** so we can try out new “interactions”

check out Myo

A man with a prosthetic arm is shown in profile, wearing a blue polo shirt and safety glasses. He is holding a black Myo armband on his upper arm. His prosthetic arm is raised, showing the mechanical components of the hand and fingers. The background is a blurred indoor setting with overhead lights.

Myo has been integrated
with prosthetic arms
to allow smoother control

A close-up photograph of a person's hand reaching for a silver door handle. The person is wearing a smartwatch with a black strap. The watch's screen is on, displaying the text "OFFICE DOOR" in white capital letters within a white rectangular border. The background is a blurred wooden door and a blue wall. The entire image has a semi-transparent dark blue overlay.

“Em sense” senses thru touch an
items electromagnetic waves and
provides a suggestion on how to
use that object

A person is lying down, possibly in a medical or futuristic setting. Their torso is transparent, revealing internal organs. Overlaid on these organs is a glowing blue cityscape with a prominent bridge, resembling San Francisco. The person is wearing a patterned shirt and has their hands clasped over their chest. The background is a plain, light-colored wall.

think of it:

There are jobs now that **did**
not exist 5 years ago

Machine Learning

Empowered jobs

**Augmented Reality
designer**

Drone Operations Handler

Human Organ Designer

**Artificial Personality
Designer**

**AI Customer Service
Supervisor**

Suicide Hotline Agent

Data Scientist, Engineers

reflection:

but Machine Learning still has
a long way to go



On agriculture

Can we build a setup where we can monitor (and possibly prevent) the early spread of fungi in banana farms?



On network security:

Can we model fraudulent acts so we can detect spammers, intruders, hackers?



On meteorology:

Can we model cloud formations to possibly predict earthquakes?

Planes dont flap their wings to fly, but birds dont take off from trees either.

A car can run faster than a cheetah, but it can never climb a tree.

A person wearing a green polo shirt and a lanyard with a badge is holding a camera. The image is overlaid with a semi-transparent green filter. Text is overlaid on the left side of the image.

Thank you for listening!

For your questions, partnerships and other concerns you may contact me via:

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