

# TRANSTECH '21



*Inaugural Speech*  
by

**Dr. Ketan Kotecha**

*on*

**"AI for All"**

zoom



# AI for ALL

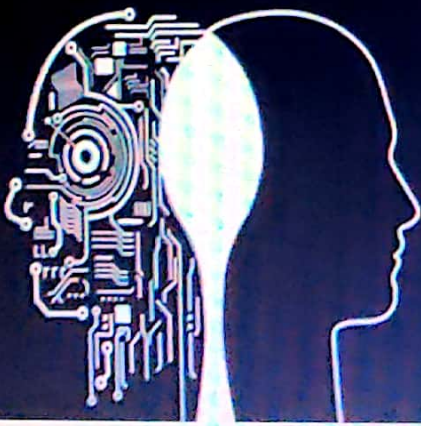
**K Kotecha(PhD, IIT Bombay)**  
**Director, Symbiosis Institute of  
Technology**

**Head, Symbiosis Centre for Applied  
Artificial Intelligence**

# The Journey

1950-1980

Artificial Intelligence



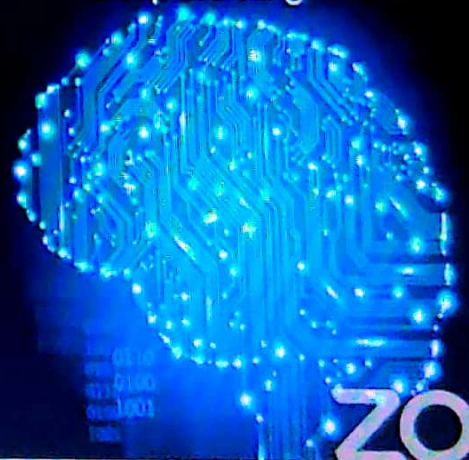
1980-2010

Machine Learning



2010 onwards...

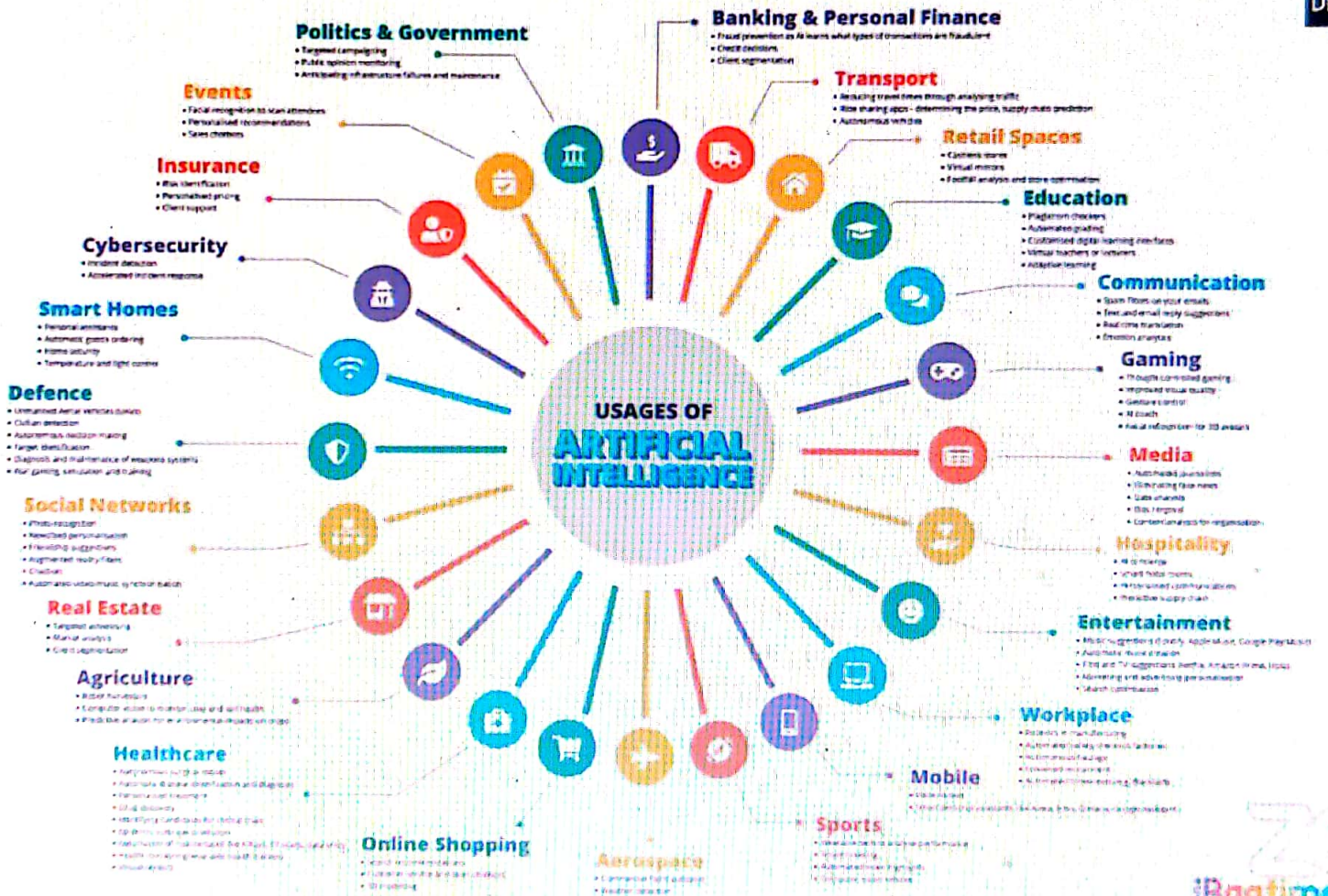
Deep Learning



# Ubiquitous AI



Dr. Ket



April 1 - April 28, 2021

# What is Artificial Intelligence?



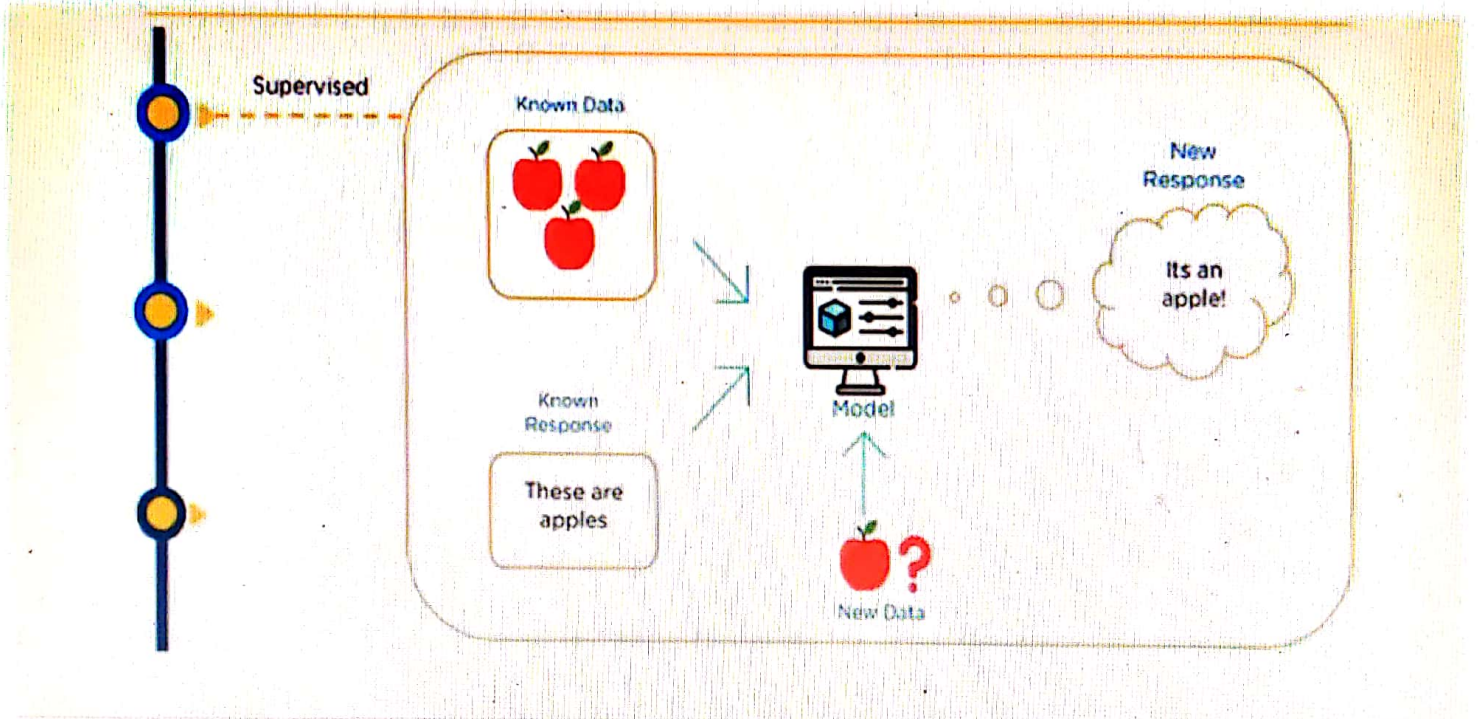
Dr. Ketan K

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# Supervised Learning

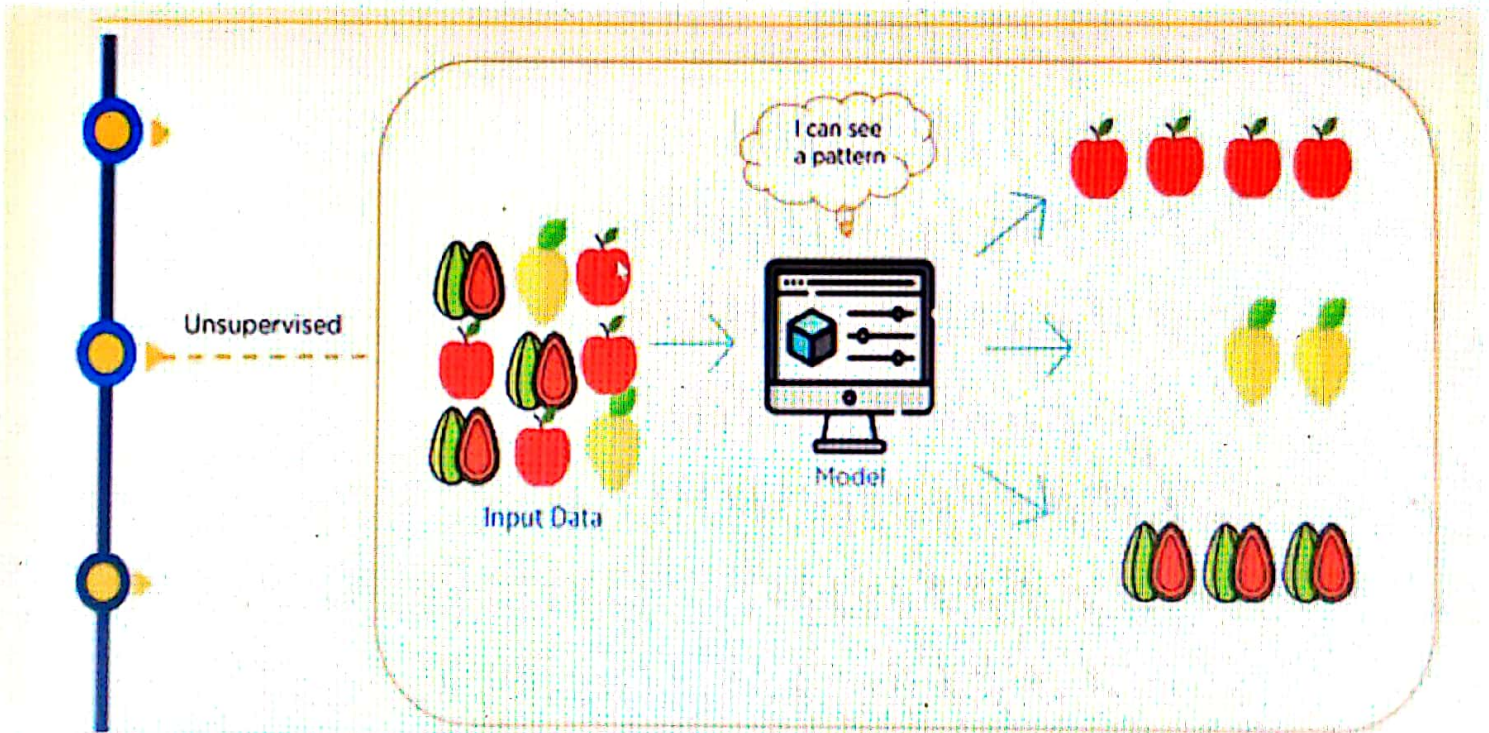
Dr. Ket



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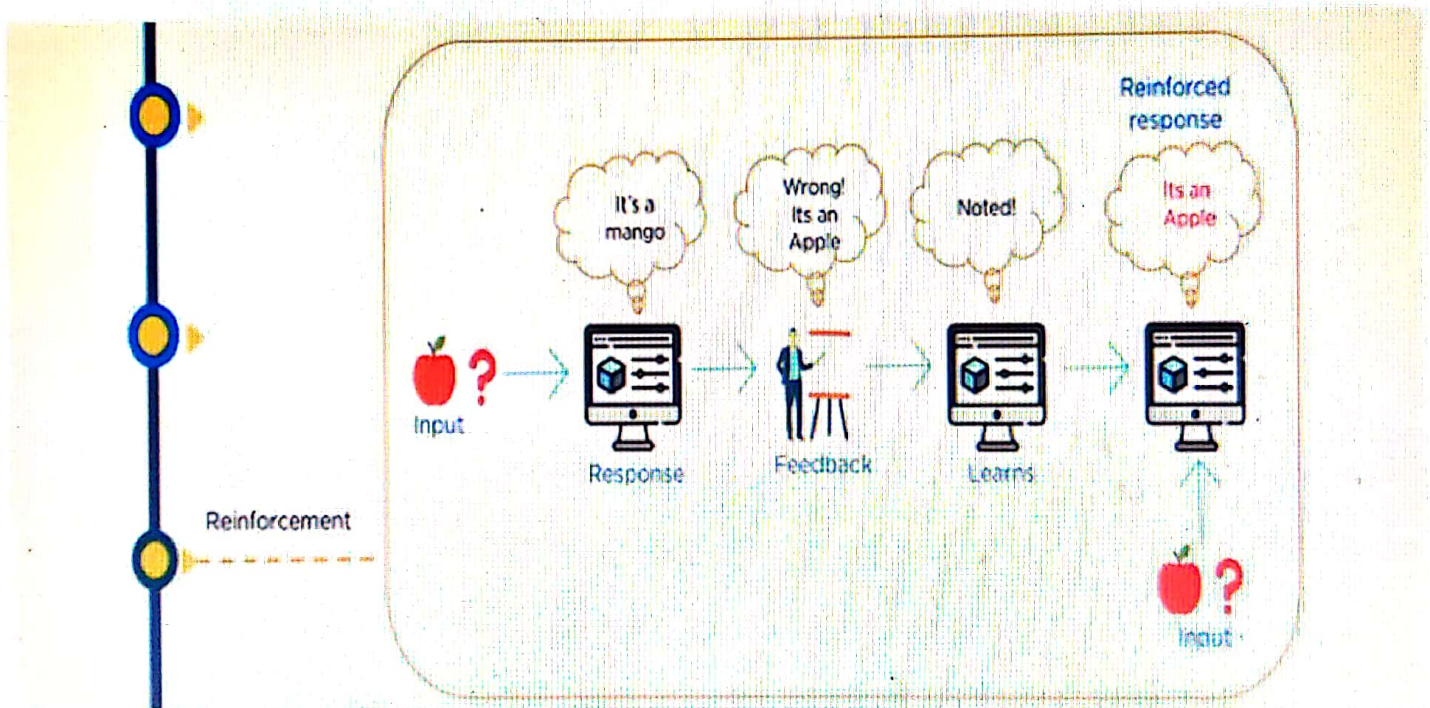
# Unsupervised Learning

Dr. Ke



# Reinforcement Learning

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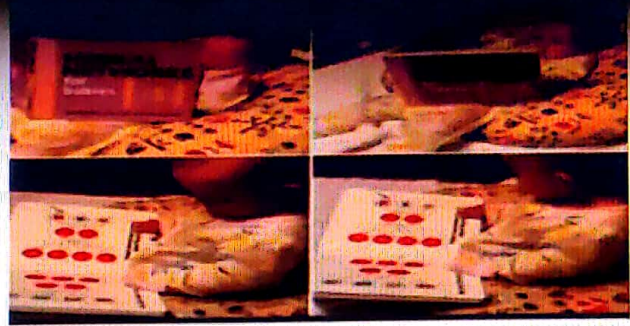


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20

Day 1 - April 28, 2021



Dr. Ket

**Supervised Learning**

**Unsupervised Learning**



**Reinforcement Learning**

20

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# Deep Learning Algorithms



Convolution Neural Networks (CNN)



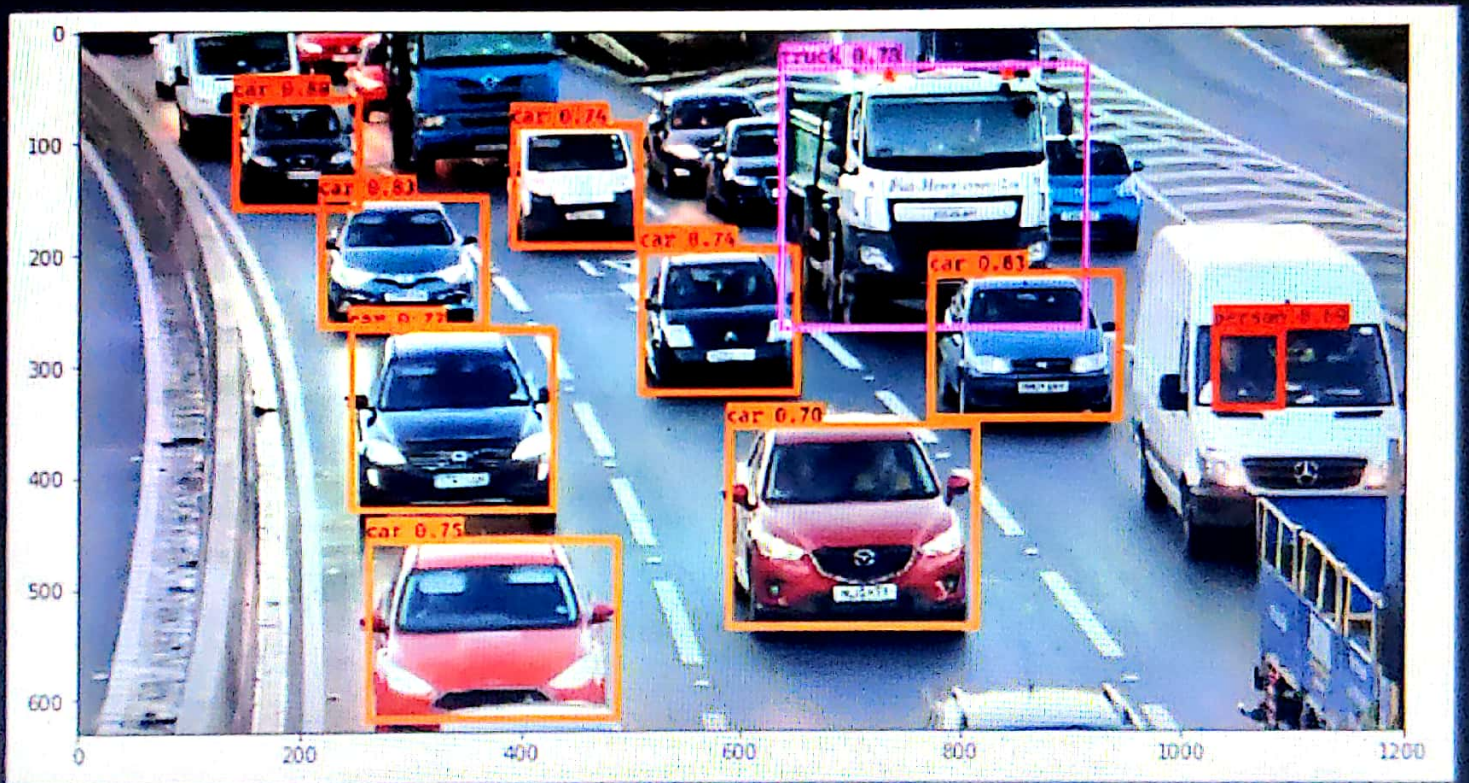
Recurrent Neural Networks (RNN)



Generative Adversarial Networks (GANs)

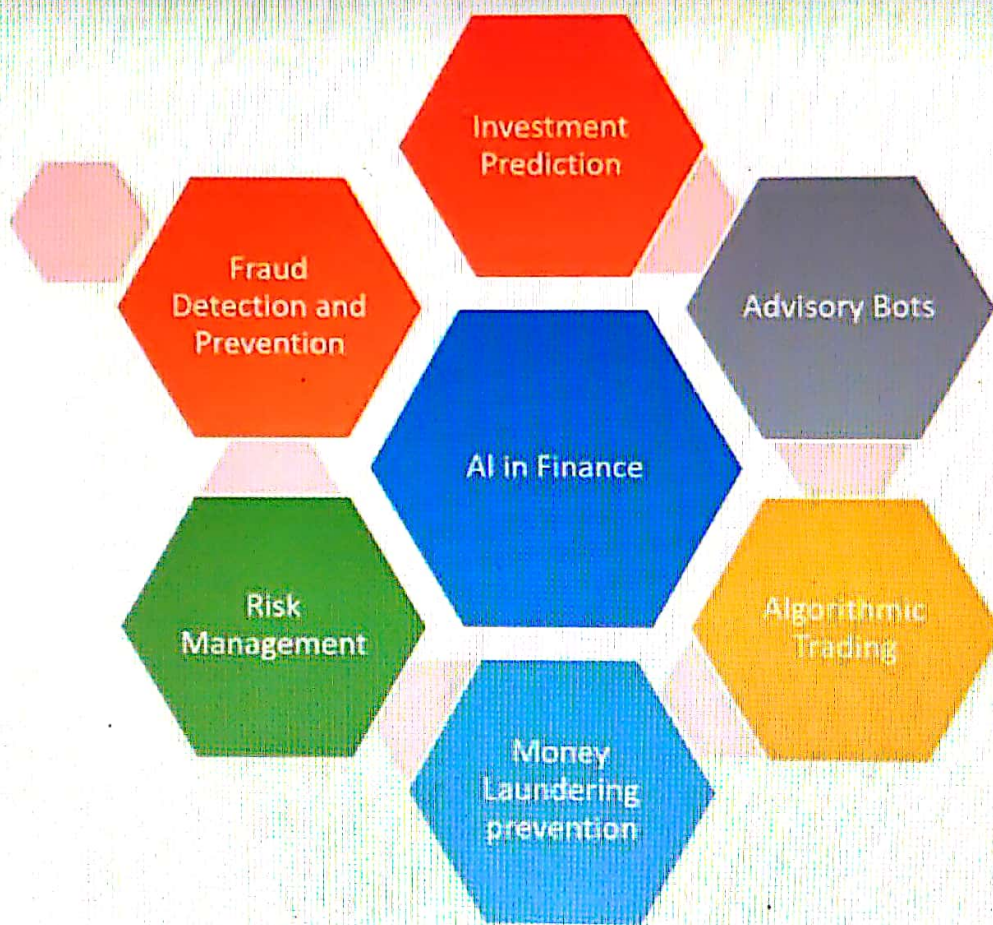
Dr. Ke

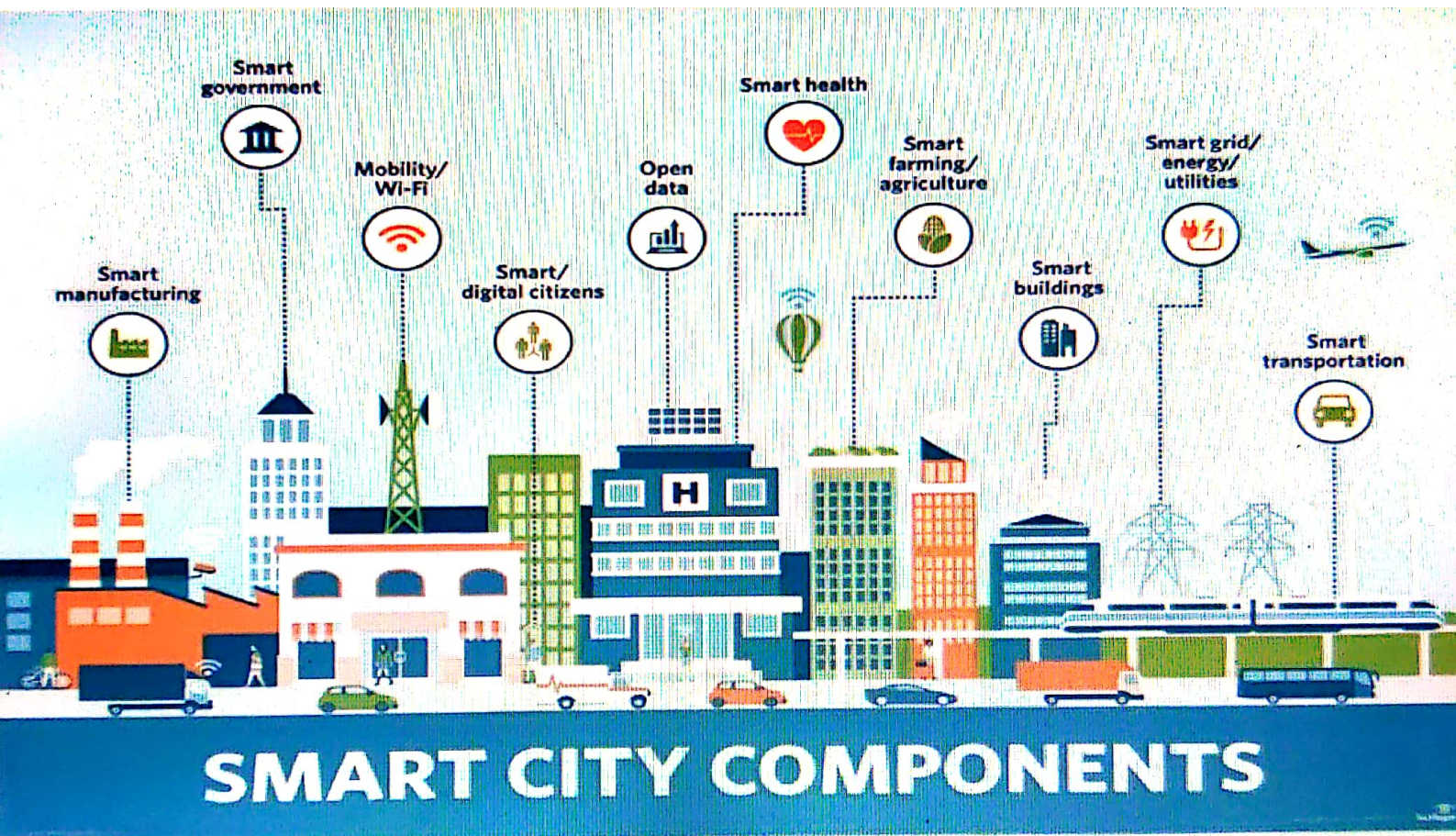
# CNN for object detection

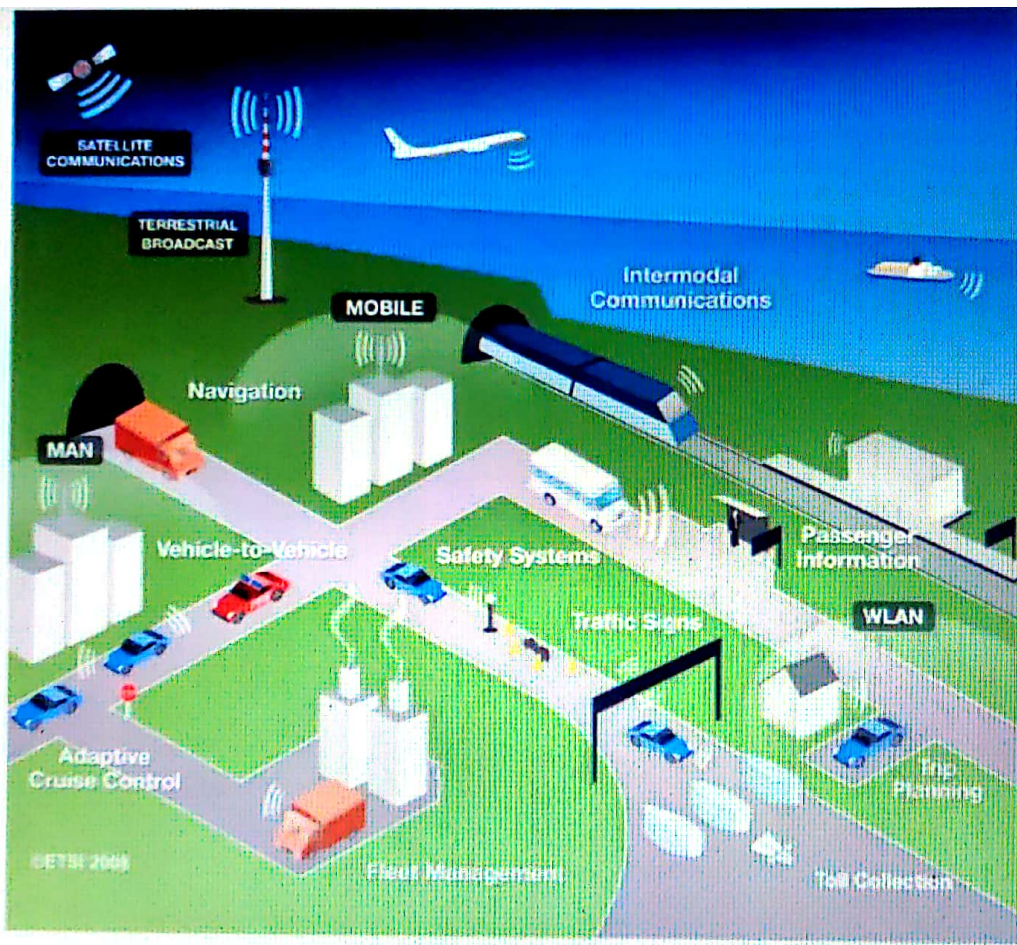


# GANs for text to image

Text description	This bird is red and brown in color, with stubby beak	The bird is short and stubby with yellow on its body	A bird with a medium orange bill white body gray wings and webbed feet	This small black bird has a short, slightly curved bill and long legs	A small bird with varying shades of brown with white under the eyes	A small yellow bird with a black crown and a short black pointed beak
64x64 GAN-INT-CLS						
128x128 GAWWN						
256x256 StackGAN-v1						
256x256 StackGAN-v2						

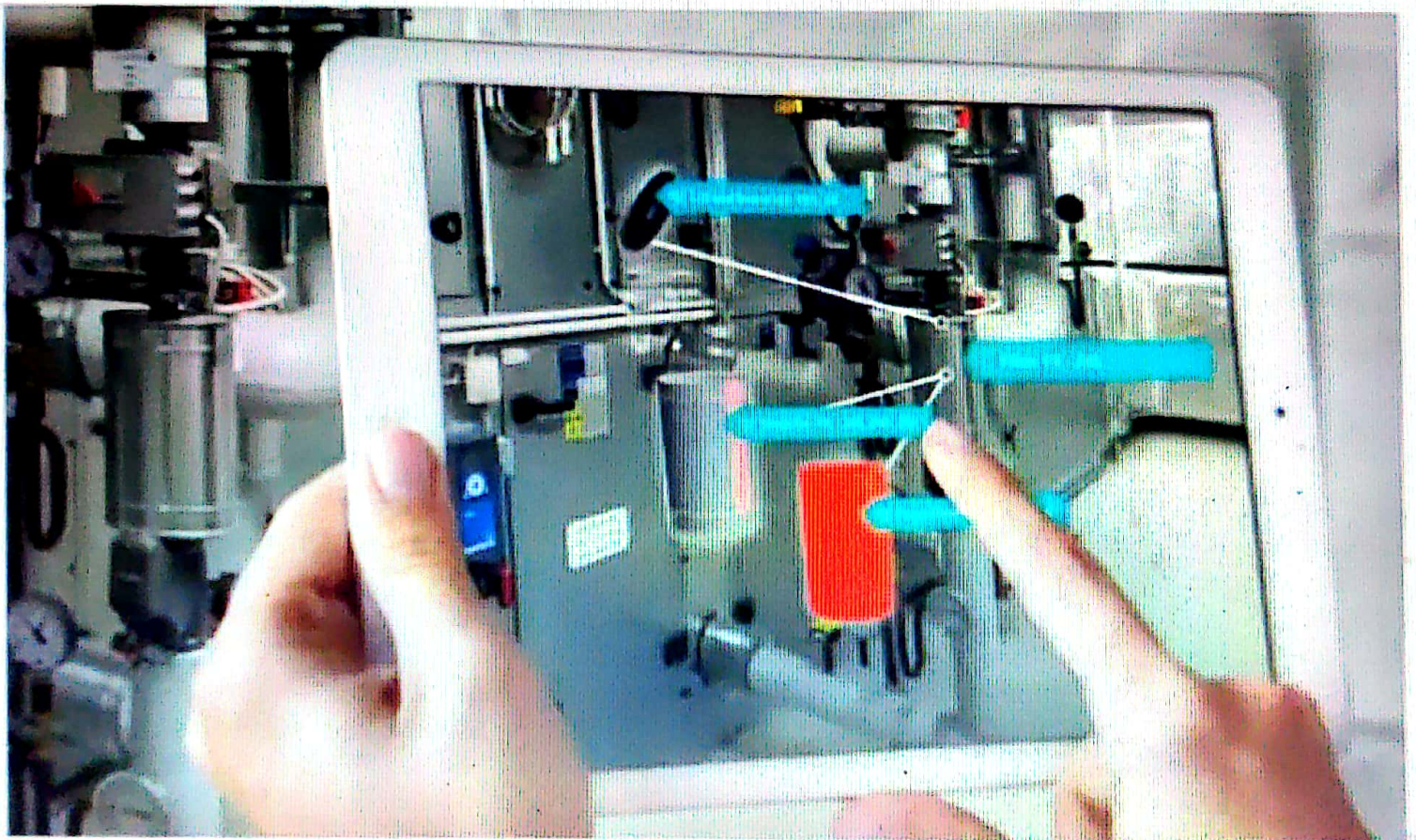


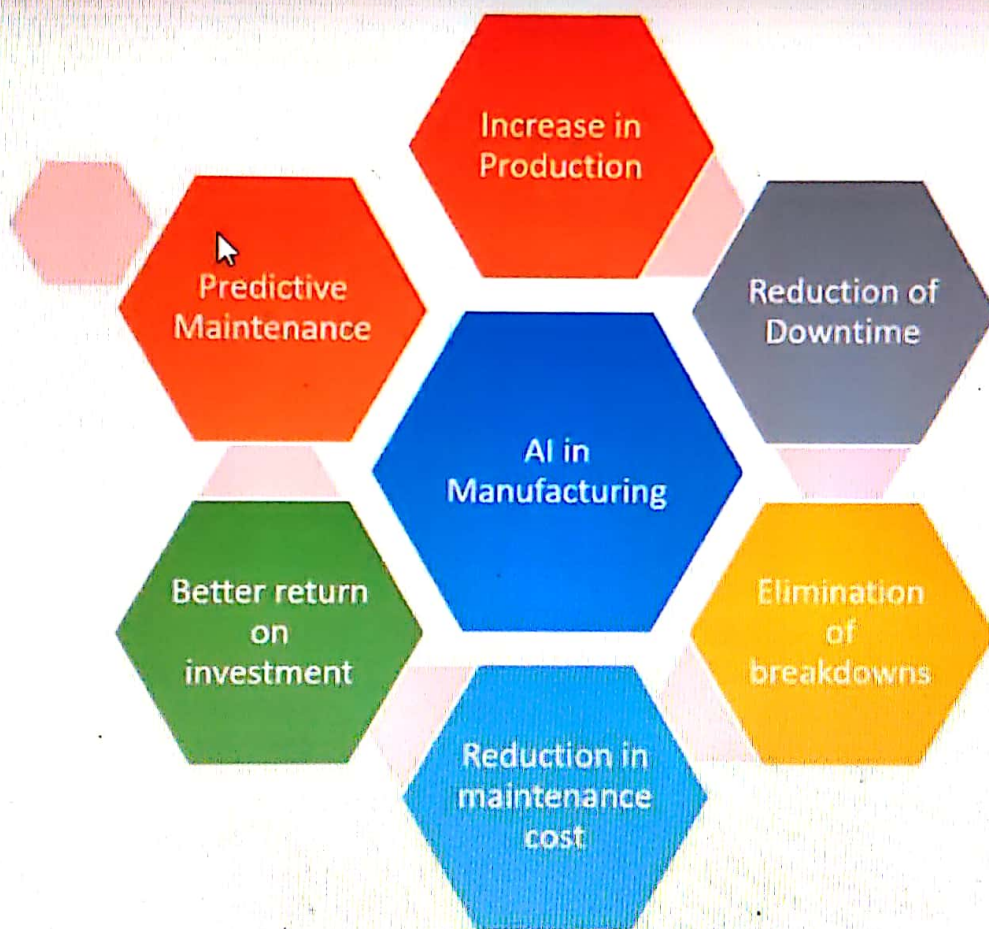




# Intelligent Transportation Systems

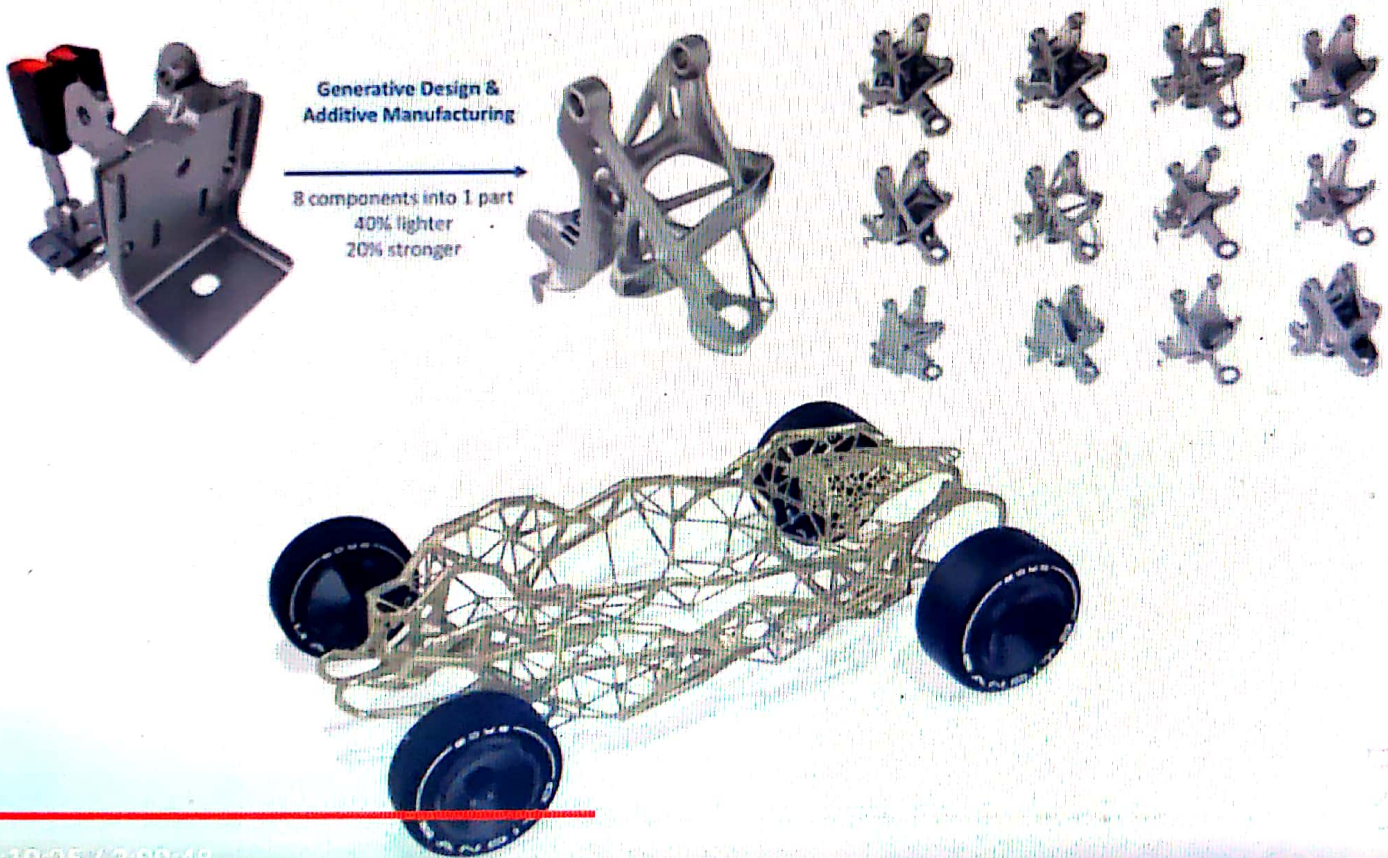
# Augmented Reality





# Generative Design - Seat Bracket

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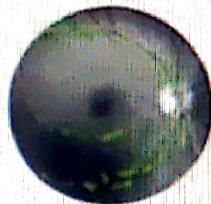




# Predicting cardiovascular risk



Image of retina



Age



Biological sex



Smoking



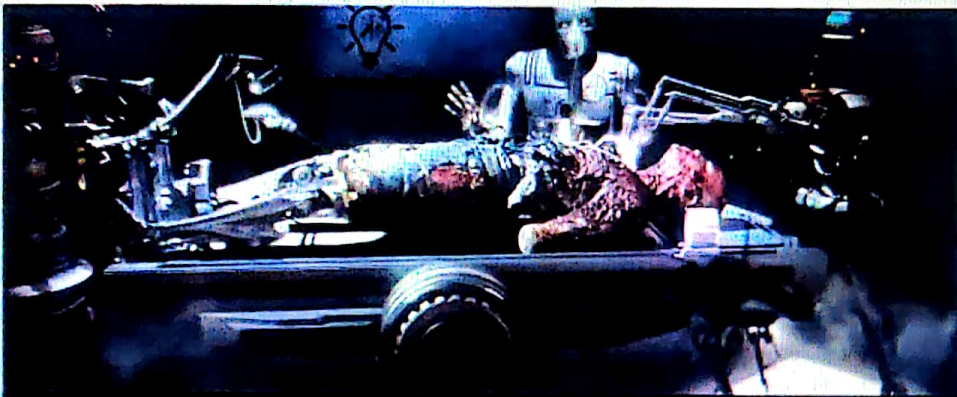
A1C



BMI



Systolic blood pressure



**German Carmaker Porche** has confirmed that they are working on a Project to undergo a Medical Operation that will be Conducted by Robots rather than the Human Surgeons. The operation will be held next year. According to Porche Research, this will transform the Medical Surgeries as the **Accuracy Rate by Robots will be 99.99%** with zero margin of error. This Will Be Surely The **Biggest Revolution in Medical Science Till Date..!!**  
**ARE YOU READY FOR ROBOT DOCTORS??**

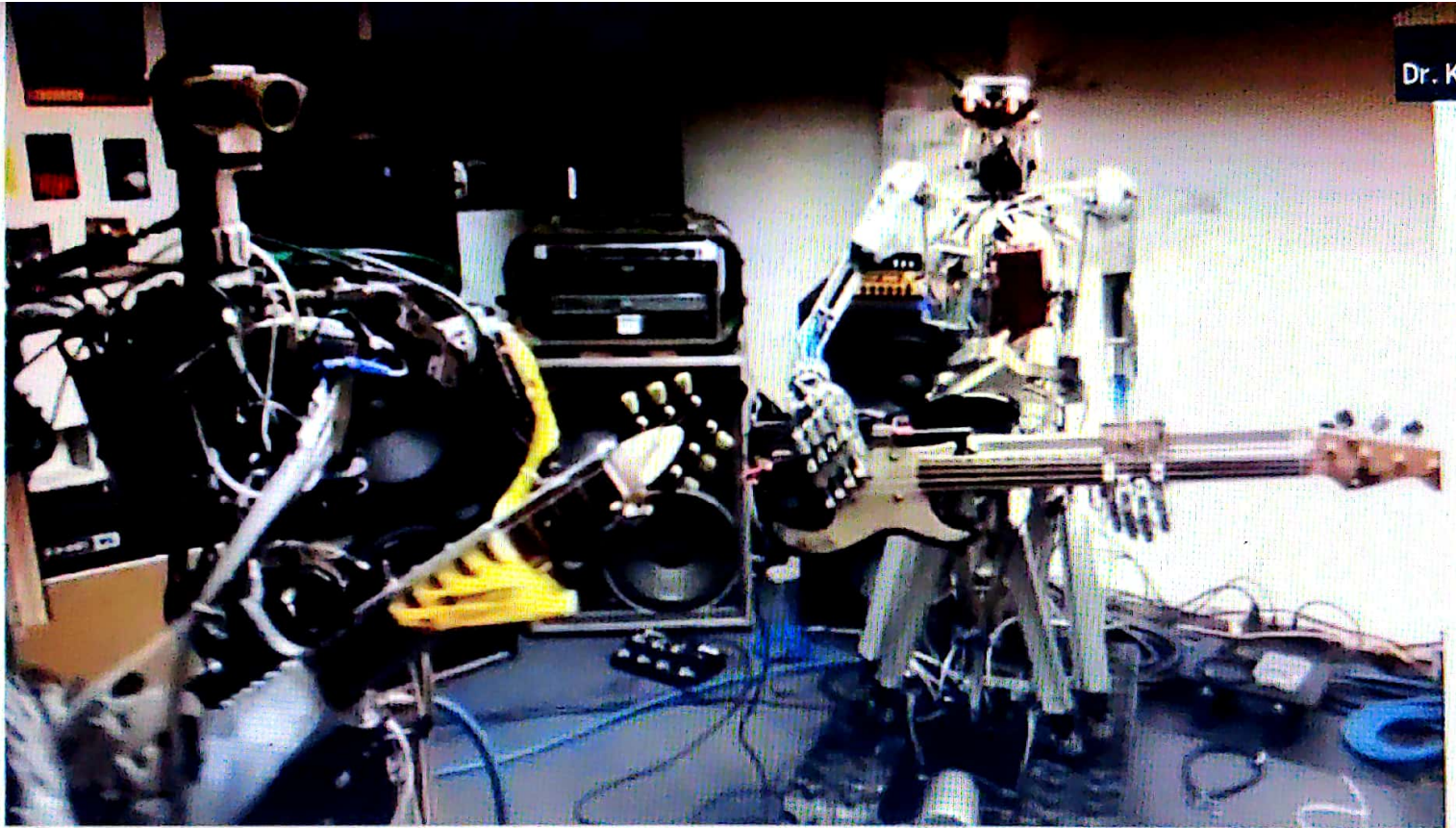
Dr. Keta

## Human Surgeries by Robots

# Wearable Devices

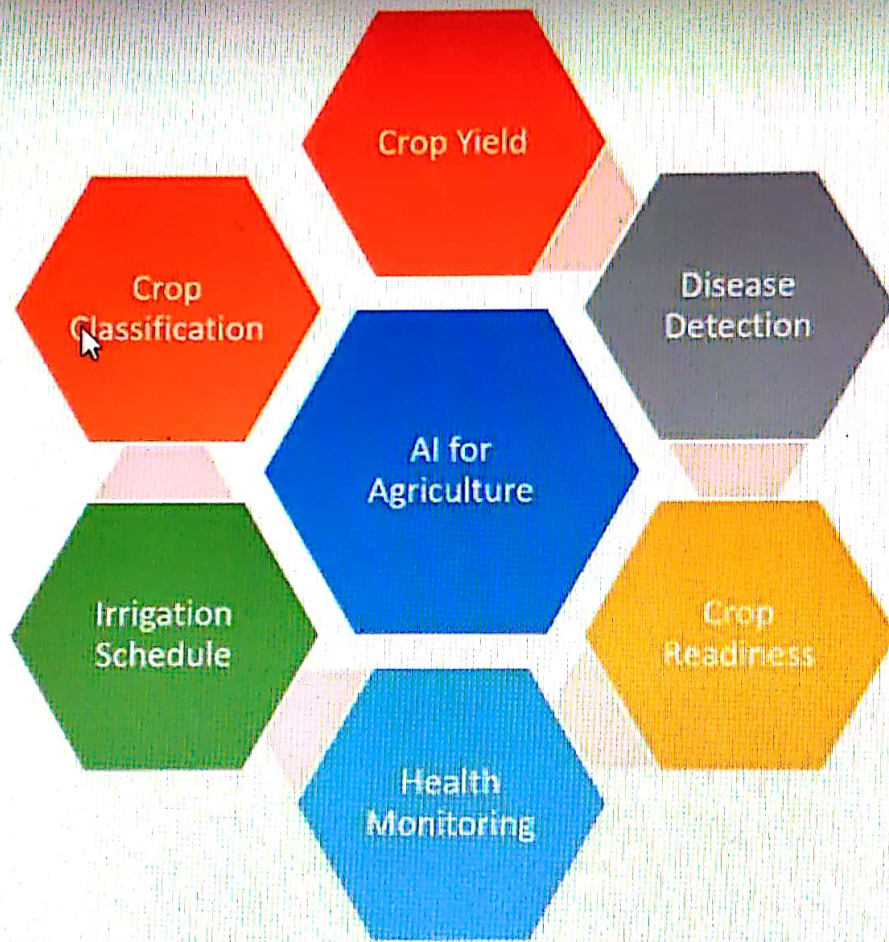
Dr. Keta





Dr. Ket

This band called Compressorhead offers another variation on teaching computers to play music



# Generating Handwriting - RNN

Dr. Keta

This message was created by a recurrent neural network!

This message was created by a recurrent neural network!

This message was created by a recurrent neural network!



This message was created by a recurrent neural network!

[This project](#) was created by Alex Graves, a student at the University of Toronto. He used an RNN to synthesize different styles of handwriting. The model can generate very realistic cursive handwriting.

### Scenario

You and Mary reconnected during Adweek. She follows up a week later to chat more about a partnership opportunity.

#### 1 A meeting request is made

From:  **Mary** <mary@example.com>  
To:  **Greg** <greg@example.com>  
Subject: **Coffee?**

Hi Greg,




It was nice to meet you during Adweek. Do you have a little time for coffee to continue our conversation? I can swing by somewhere close to your office.

Thanks,

Mary



#### 2 You reply and cc: Amy

From:  **Greg** <greg@example.com>  
To:  **Mary** <mary@example.com>  
CC:  **Amy** <amy@x.ai>  
Subject: **Re: Coffee?**

Sure, Mary.

Amy, can you find 30 minutes for coffee at my office?

Cheers,

Greg

# Replying Short email automatically -X.ai

# Game Design

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Disgust



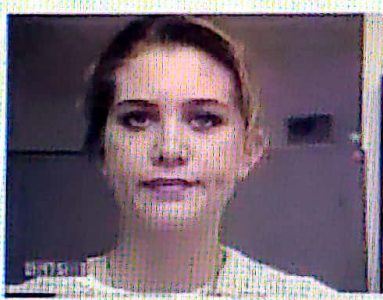
Surprise



Sad



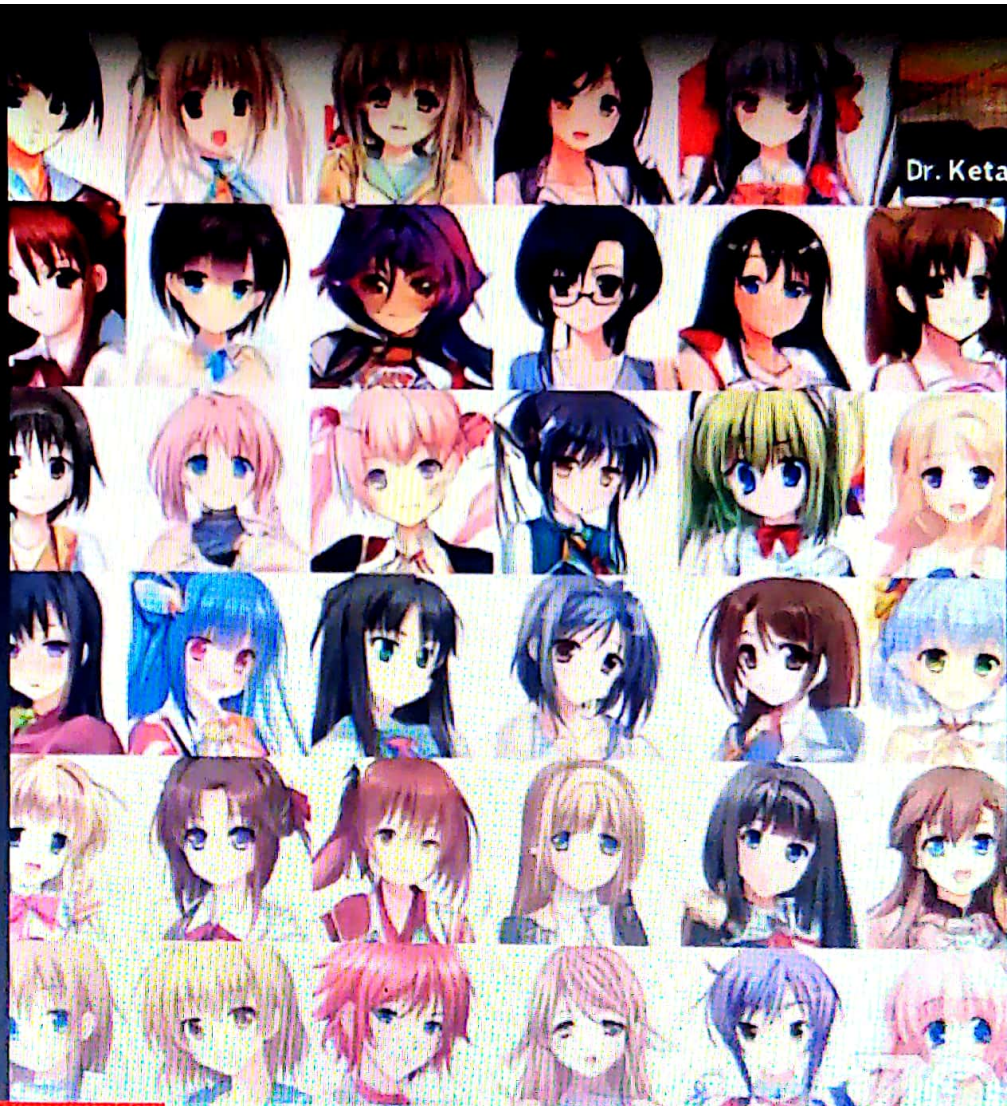
Angry



# Facial Expression Recognition

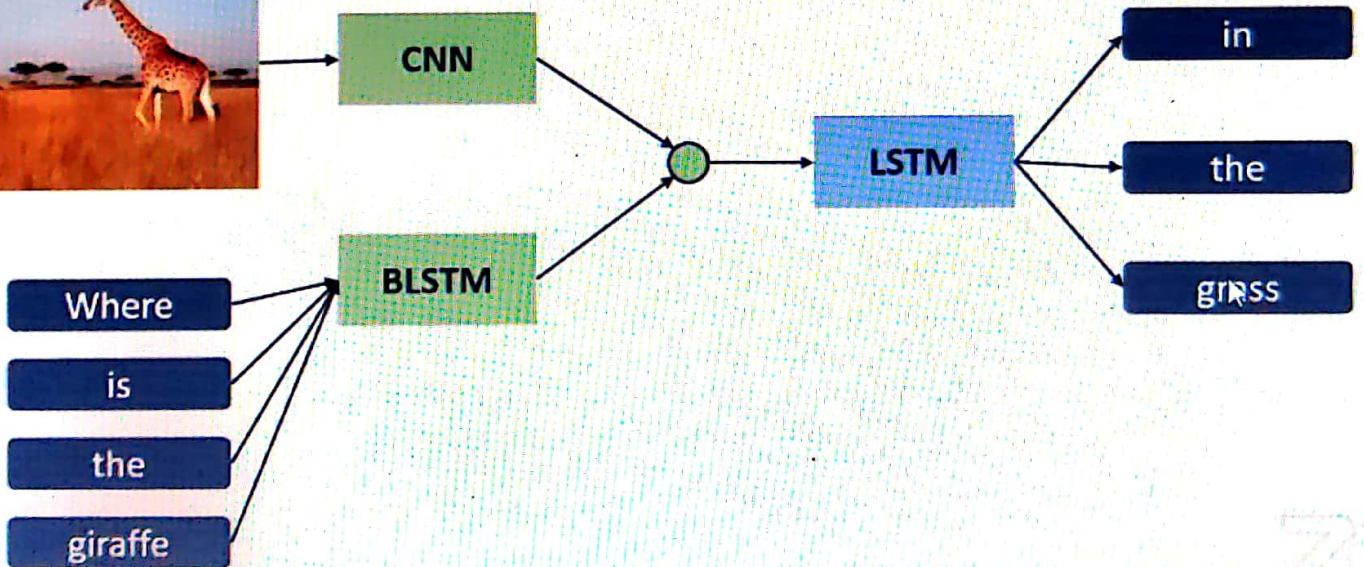
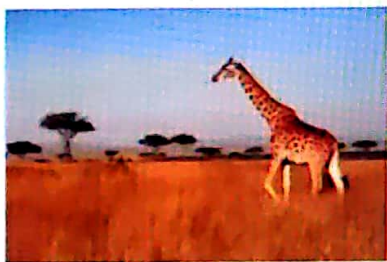
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# Create Anime Characters



# Visual Question Answering

Dr. Ketan



# HAPIfork

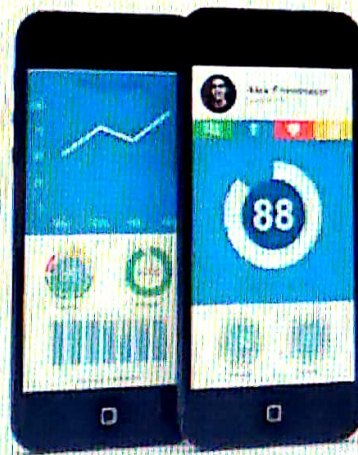
The HAPIfork is an electronic fork that helps you monitor and track your eating habits. It also alerts you with the help of indicator lights and gentle vibrations when you are eating too fast.



<http://www.hapi.com/products/hapifork.asp>

# Smart Tooth Brush

The Beam Brush is a connected toothbrush that engages users with their daily hygiene routine.



<http://www.beamtoothbrush.com/toothbrush>

# Hydroponic System

Niwa is the first fully automated hydroponic system that attends to all of your plants' needs and water them, feed them and make sure they have optimal growing conditions 24/7.

<http://niwa.co>

# Smart Sprinkler Control

Lono lets you control your sprinkler system anywhere, anytime with your smart phone. And the things that should be automated, finally are.



[/lono.io](http://lono.io)

# Swing Analyzer

Make your Zepp Sensor multi-sport, all you need to do is purchase additional sport specific mounts and download the app.



# Smart Sleep System

Visualize your sleep cycles, understand what wakes you up, and compare nights. From the palm of your hand you can control your personalized wake-up, and fall-asleep programs.



# Smart Slow Cooker

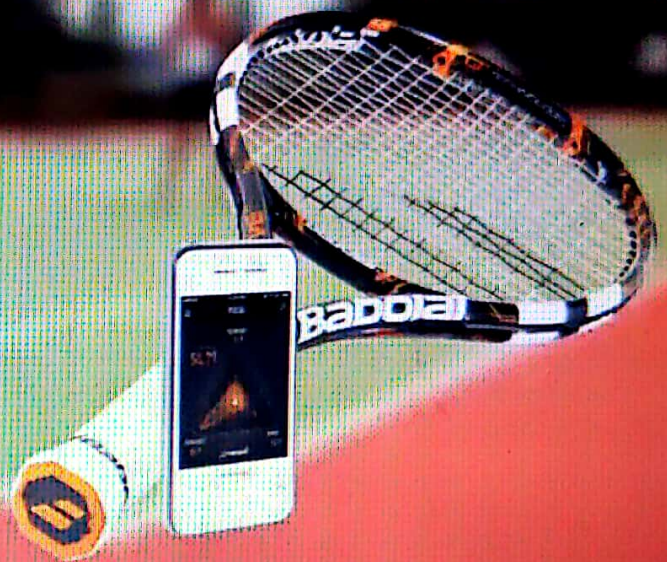
Enjoy remote access to all your slow cooker's functions, no matter where you are.



Visit [www.crockpot.com](http://www.crockpot.com) for more information.

# Smart Tennis Racket

Track your game with Babolat's breakthrough innovation. See where you stand in the global ranking and by category within your online community.



<http://www.babolat.com>  
in

# Smart Socks

Socks infused with proprietary 100% textile sensors. They are paired with a Bluetooth Smart cool and detachable anklet that delivers accuracy in step counting, speed, calories, altitude and distance tracking.

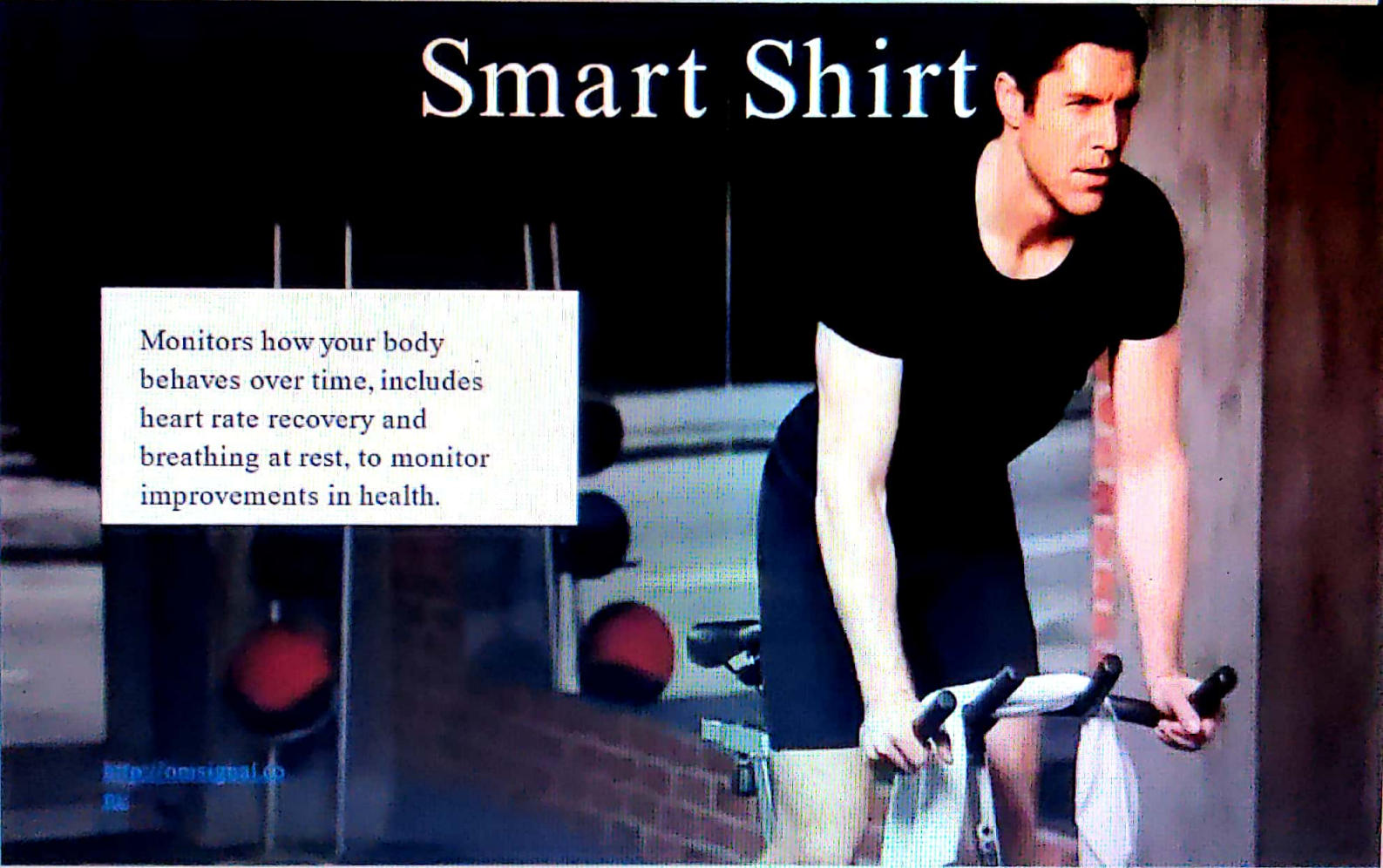


# Smart Bike

Valour by Vanhawks gives directions, reroutes to avoid traffic, and tracks riding metrics.



# Smart Shirt

A man in a black smart shirt is riding a stationary bike in a gym. The background shows gym equipment like treadmills and weights.

Monitors how your body behaves over time, includes heart rate recovery and breathing at rest, to monitor improvements in health.

<http://onsignal.co>  
DE

**"Artificial intelligence will transform every industry, just as electricity did 100 years ago. Between now and 2030, AI will create an estimated \$13 trillion of GDP growth."**

**Andrew Ng,**  
Coursera Co-Founder



coursera

Thank You

