PANTECH SOLUTIONS®
Technology Beyond the Dreams

AI Master Class series – Day I

Overview of AI | Create your own chatbot

What u will learn.

ARTIFICIAL INTELLIGENCE

- Overview of this course | Introduction to AI | How to create basic AI application (Chat bot using DialogFlow)
- How to install Python & Libraries | Basics of python Programming for AI.

COMPUTER VISION

- Introduction to Computer Vision| How to install computer vision libraries
- Moving Object Detection and tracking using OpenCV
- Face Detection and Tracking using OpenCV
- Object Tracking based on colour using OpenCV
- Face Recognition using OpenCV
- Face Emotion recognition using 68-Landmark Predictor OpenCV

MACHINE LEARNING

- Introduction to Machine learning| How to install ML libraries
- Evaluating and Deploying the various ML model
- Fake news detection using ML
- AI snake game design using ML

DEEP LEARNING

- Introduction to Deep learning | How to install DL libraries
- Designing your First Neural Network
- Object recognition from Pre-trained model
- Image classification using Convolutional Neural Network
- Hand gesture recognition using Deep Learning
- Leaf disease detection using Deep Learning
- Character recognition using Convolutional Neural Network
- Label reading using Optical Character recognition
- Smart Attendance system using Deep Learning
- Vehicle detection using Deep Learning
- License plate recognition using Deep Learning
- Drowsiness detection using Deep Learning
- Road sign recognition using Deep Learning

DEPLOYING AI IN HARDWARE

- Cloud-based AI, Object recognition using Amazon Web Service (AWS) & Imagga
- Deploying AI application in Raspberry Pi with Neural Compute stick & Nvidia Jetson Nano

NATURAL LANGUAGE PROCESSING

- Introduction to NLP & it's Terminology | How to install NLP Libraries NLTK
- Title Formation from the paragraph design using NLP
- Speech emotion analysis using NLP

Prerequisites for this Course

Laptop with Good Internet

No basic knowledge is required.

Problems in Learning

More Content
Hard to Learn
Less Applications
Not Interactive
Not Precise
Problem is Lack of Information

What is AI?.

- Intelligence demonstrated by the Machines in contrast to Natural Intelligence delivered by Humans
- Intelligence is given by feeding the experience of human to machines in the form of data

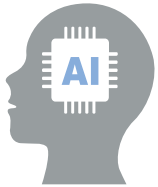
“AI WILL BE THE BEST OR WORST THING EVER FOR HUMANITY.” – Elon Musk

Why AI?.

- AI automates repetitive learning and discovery through data
- AI adds intelligence
- AI analyzes more and deeper data
- AI achieves incredible accuracy
- 24x7
- Reduces Man power

“Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last, unless we learn how to avoid the risks.” – Stephen Hawking

How AI?.



See & Recognize: Computer Vision & Deep learning

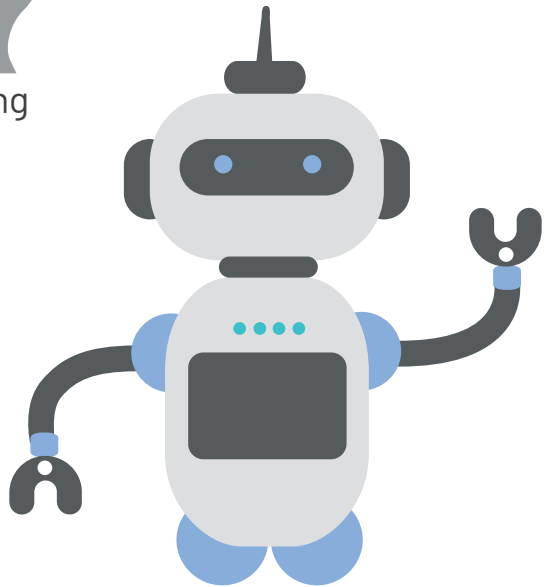
Eye – Camera

Analyze & Learn: Machine Learning

Sensing organs – Sensors

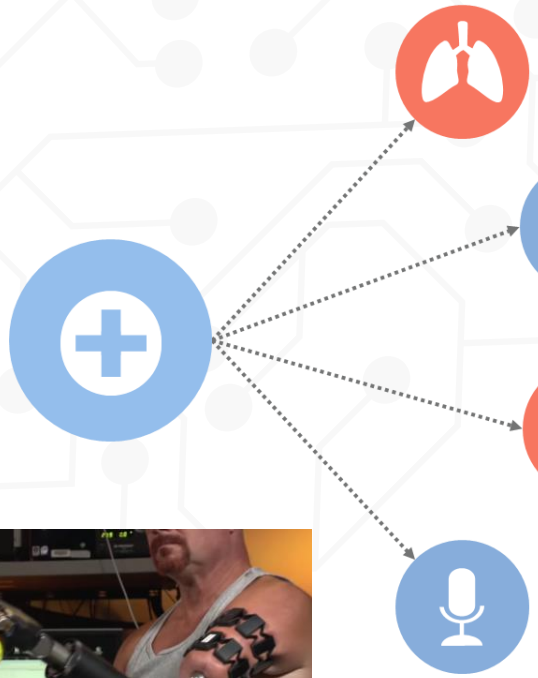
Listen & Speak: Natural Language Processing

Ear & Mouth – Mic & Speaker



Applications of AI

AI in Medical.



AI Doctor

It is kind of machine analyses the symptoms and cause and suggesting the Medicine for the patient. Those knowledge is fed by tons of Medical data, based on the applications.

Physical Applications for handicap

With the help of Bio sensors like EMG & EEG sensors, handicaps movement is analysed and trained to move the robotic Arm/Leg even don't have those

Prediction of Disease from Medical Image

It is the application uses medical images, to classify the diseased and healthy like Diabetic Retinopathy

Voice recognition for ALS Patient

ALS (amyotrophic lateral sclerosis) is a kind of disease which causes speech problems, the voice of the patients completely non understandable. AI helps to train the voice of ALP patients to deliver voice based assistance for them.

AI in Agriculture.

01 Weather prediction and Suggestion

AI applications to analyse the weather, and forecasting the weather to give the vegetation suggestion based on crops in a field. Which decreases spoiling the crops due to natural disaster

02 Plant disease detection and pesticide recommendation

This AI application is to monitor the crops 24x7 to detect the disease using image processing and to spray the suitable pesticide

03 Classification

After cultivation, Fruits and Vegetables needed to be segregated based on the quality like Rotten or Healthy. AI application will done this with great accuracy

04

It is little weird !!!, There is a possibility of predicting once countries vegetation by using satellite image. Prediction on Type, Quality and Quantity of specific country.

AI in Voice Assistance.

Google assistance / Alexa / Siri / ChatBot

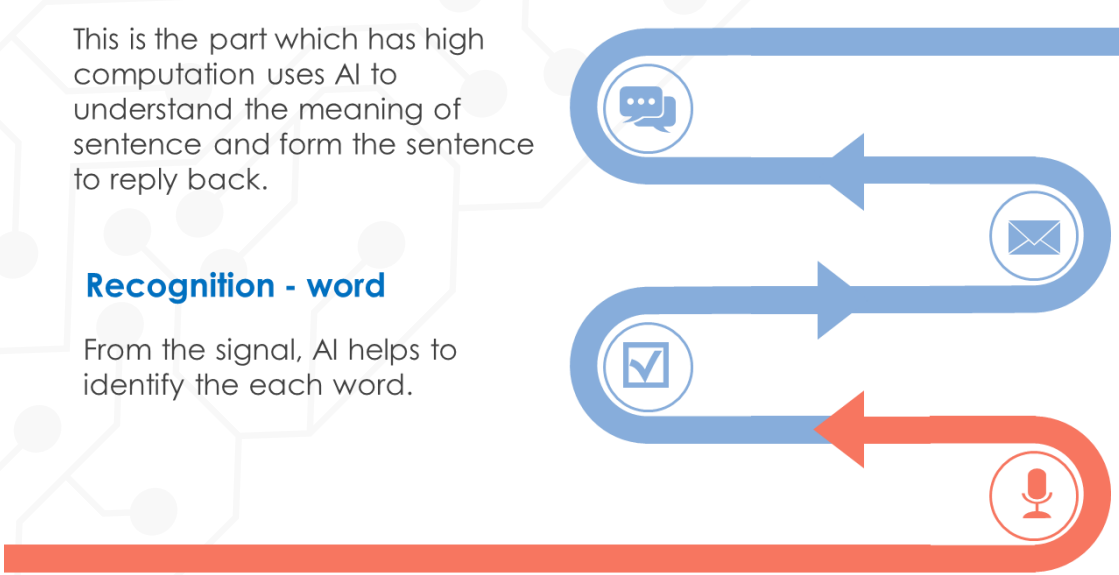
Google Home, Amazon Echo, Hike Natasha

Reply

This is the part which has high computation uses AI to understand the meaning of sentence and form the sentence to reply back.

Recognition - word

From the signal, AI helps to identify the each word.



Speak

Sentence is converted to Audio signal

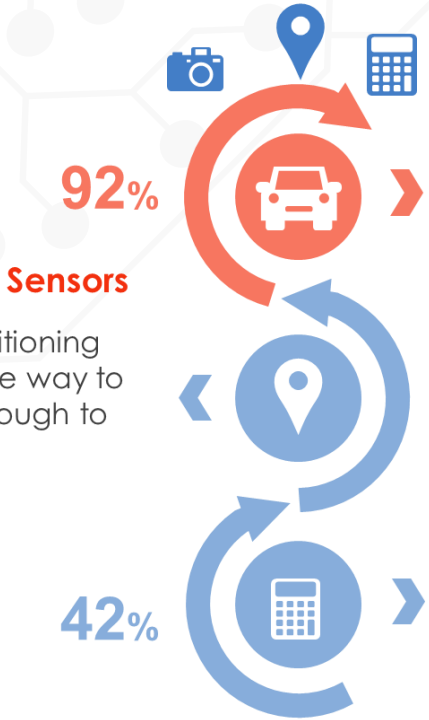
Recognition - Sentence

To form a sentence, AI analyses the nearby word signal to identify the complete sentence what user told.

Listening

Listening is the first process in voice assistance, which the voice nothing but a signal.

AI in Autonomous Vehicle.



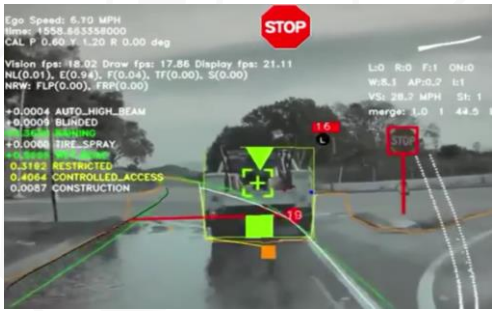
AI with Sensor Fusion

Vehicle with LIDAR, RADAR, Camera and other Sensors

Current Autonomous vehicle uses sensor fusion, by applying AI application on camera, 3D LIDAR, RADAR, GPS etc. So that chance of colliding is reduced and Smooth driving is achieved by autonomous decision.

Autonomous vehicle with GPS & Sensors

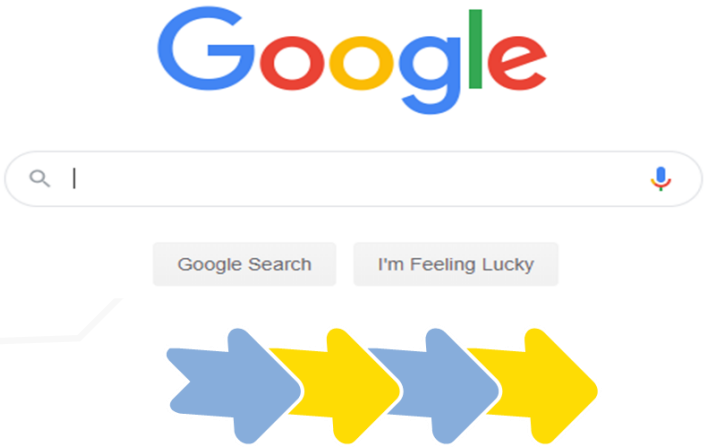
In a vehicle, sensors and Global positioning system allows vehicle to navigate the way to reach destination. But still it is not enough to drive the car on road autonomous.



AI on Autonomous Vehicle with only sensors

In a Autonomous vehicle, only with sensors chances of colliding is high. Even accuracy is good, it is not enough to have Autonomous car in real-time.

AI in Search Engine.



01 **Google Suggestion**

AI is used to predict and suggest the result based on the search history.

02 **SEO- Search Engine Optimisation**

AI helps to analyse the content of the website to show in priority

03 **Result**

AI helps to understand the need from the search, and filter out related result in short time.

04 **Web Ads**

AI analyses every users to identify their interest, so that related ad's are delivered right users.

AI in Social Media & Other.

Music – Composing | Recommendation

In **composing**, AI is used to identify the pattern of every musician to compose music for certain situation in the style of certain composer or by itself. AI in **recommendation** used in Spotify kind of application to recommend the type of song based on users

E-Commerce

AI used to analyse the user need, and to recommend the products for every individual users.

Social Media

AI is used to analyse user interest in several topics, Finding bad contents, Chat Bots etc.

AI in Cooking

Now AI is used for studying and identifying the pattern of molecular structure of Food Items to deliver a new dish recipes.

Dialogflow.

Dialogflow is a natural language understanding platform used to design and integrate a conversational user interface into mobile apps, web applications, devices, bots, interactive voice response systems, and so on.

- Small Talk
- Intents
- Entity
- Integration
- Pre built Agents

Applications of Chatbot.

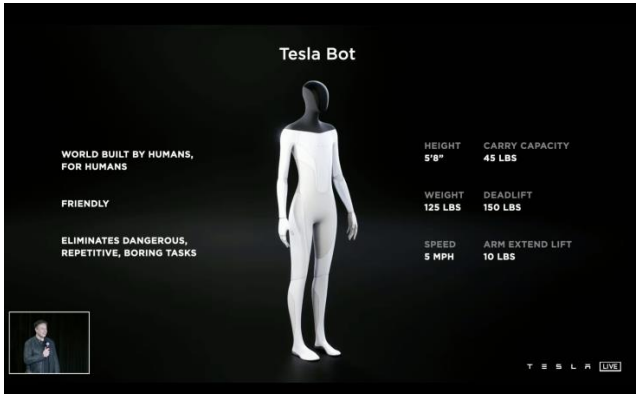
- ✓ Voice Assistance
- ✓ Social Media
- ✓ Customer Support
- ✓ Helpdesk
- ✓ Medical Assistance
- ✓ Restaurant
- ✓ Transportation
- ✓ E-Commerce

Chatbot session will be covered Tomorrow

Today's Short Bytes — TECH NEWS

Elon Musk's "Tesla Bot" is Trained to Eliminate repetitive Task

"Tesla is arguably the world's biggest robotics company because our cars are semi-sentient robots on wheels,
It kind of makes sense to put those in a humanoid form"



Thanks!

Connect with me on **LinkedIn:**
link in Description

www.pantechsolutions.net

Tomorrow session

Python & Libraries Installation

Basic Python Programming