



SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

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Department of Biomedical Engineering

**Course Name: 19ECT303 & Artificial Intelligence and machine
learning**

III Year : V Semester

Unit I – FUNDAMENTALS OF MACHINE LEARNING

**Topic : Definition of learning systems, Goals and applications of
machine learning**

19ECT303/Artificial Intelligence and Machine Learning/Unit 1/Mr.
Karthik G. L. /AP/BME



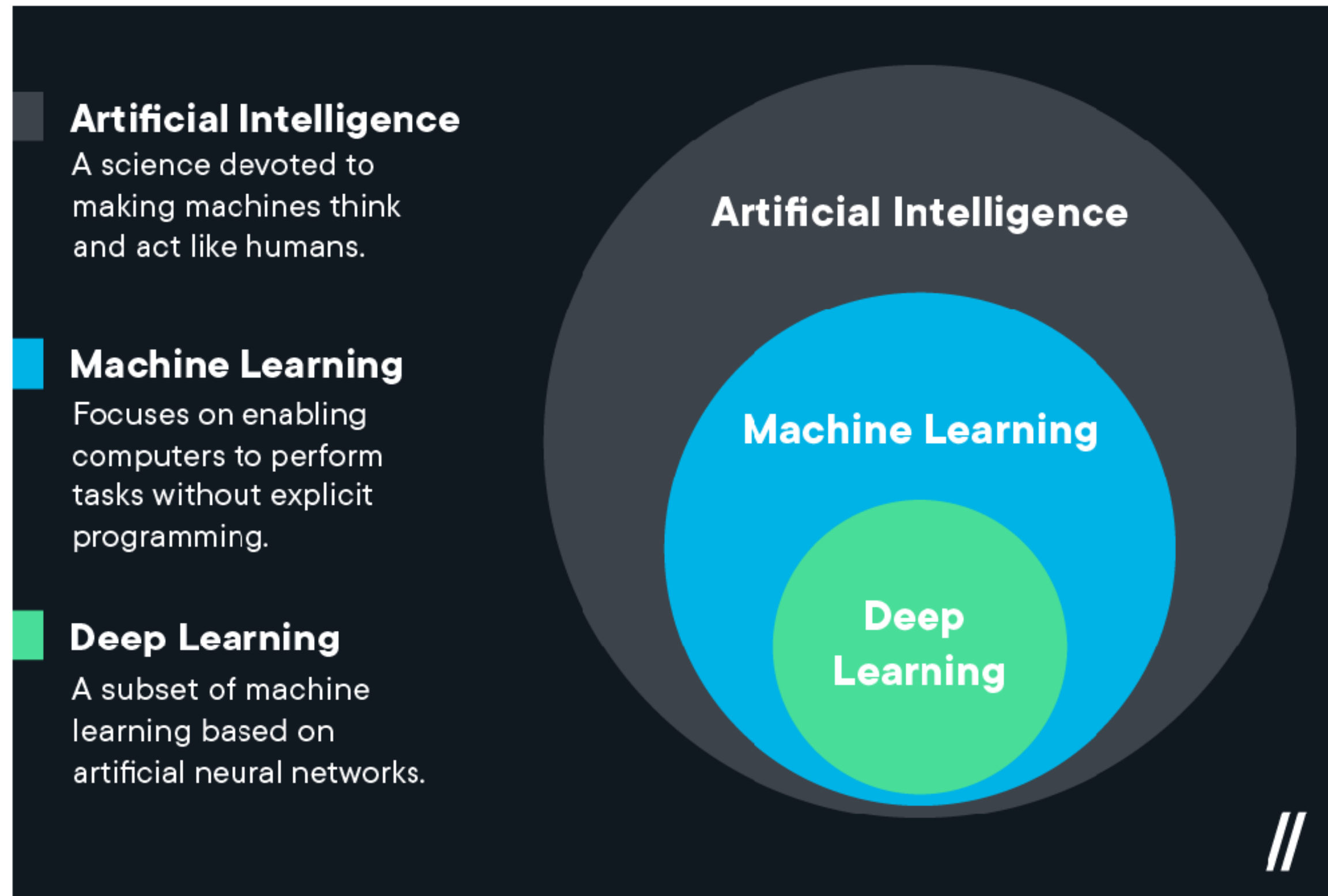
Machine Learning



- Machine Learning(ML) is the field of study that gives computers the capability to learn without being explicitly programmed.
- ML is one of the most exciting technologies that one would have ever come across.
- Machine learning is actively being used today, perhaps in many more places than one would expect.
- Machine learning (ML) is a type of artificial intelligence (AI) that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so.



AI Vs ML Vs DL





Traditional Programming Vs ML



19BMB304/Biomedical Image Processing/Unit 1/Dr Karthika A/AP/BME



19ECT303/Artificial Intelligence and Machine learning/Unit 1/
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**GROUP DISCUSSION FOR 10
MINUTES ABOUT APPLICATIONS
OF MACHINE LEARNING**

Vision Tit 2

Vision Title 3

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Applications of ML

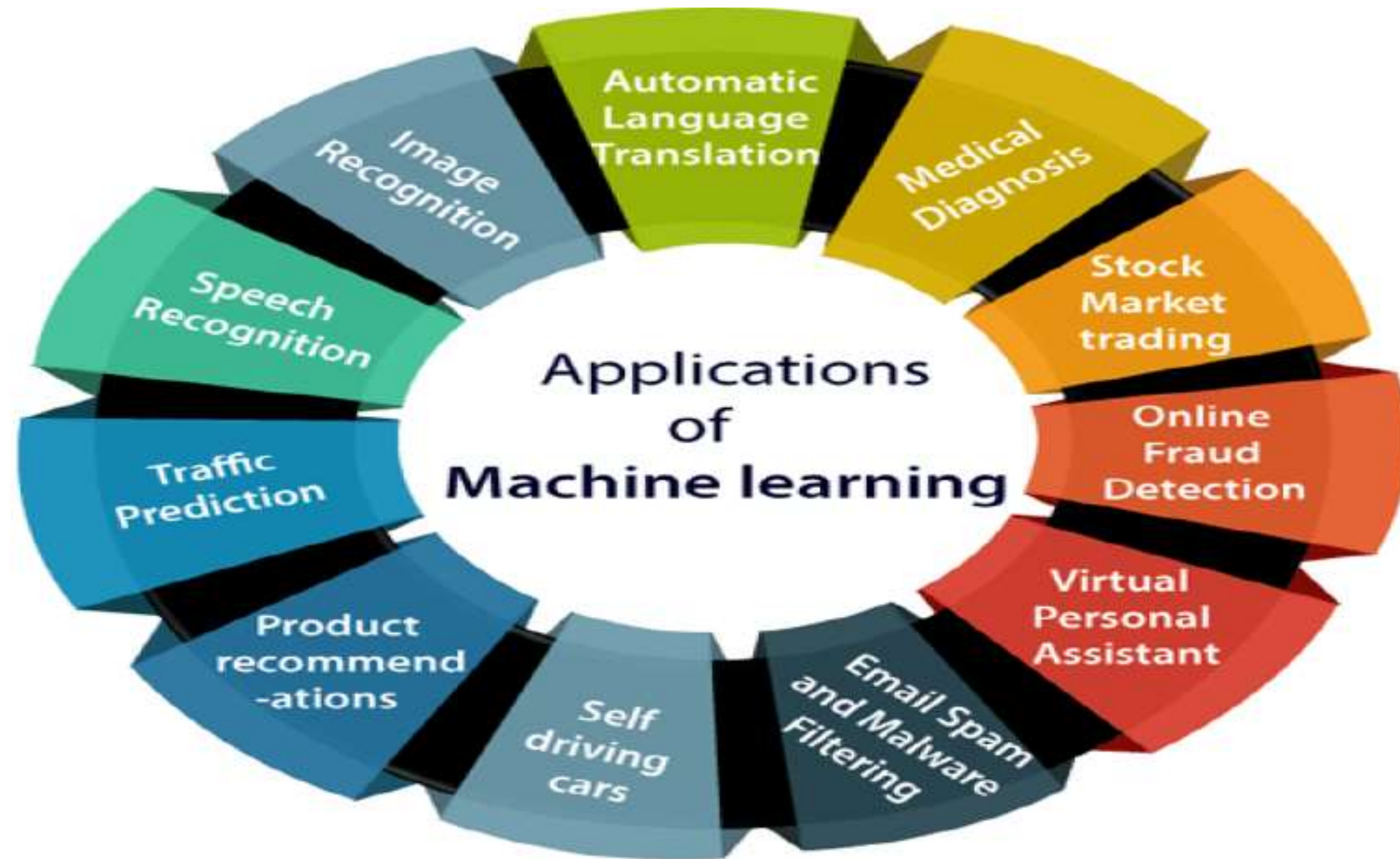




Image Recognition

- Image recognition is one of the most common applications of machine learning- used to identify objects, persons, places, digital images, etc.
- The popular use case of image recognition and face detection is, Automatic friend tagging suggestion:
Facebook provides us a feature of auto friend tagging suggestion
- It is based on the Facebook project named "Deep Face," which is responsible for face recognition and person identification in the picture.



Speech Recognition



- While using Google, we get an option of "Search by voice," it comes under speech recognition, and it's a popular application of machine learning.
- Speech recognition is a process of converting voice instructions into text, and it is also known as "Speech to text", or "Computer speech recognition."
- At present, machine learning algorithms are widely used by various applications of speech recognition. Google assistant, Siri, Cortana, and Alexa are using speech recognition technology to follow the voice instructions.

Vision Tit 2

Vision Title 3



Traffic prediction



- Google Maps- shows us the correct path with the shortest route and predicts the traffic conditions.
 - It predicts the traffic conditions such as whether traffic is cleared, slow-moving, or heavily congested with the help of two ways:
 - Real Time location of the vehicle from Google Map app and sensors
 - Average time has taken on past days at the same time.
- Everyone who is using Google Map is helping this app to make it better. It takes information from the user and sends back to its database to improve the performance.



Product recommendations

- Machine learning is widely used by various e-commerce and entertainment companies such as Amazon, Netflix, etc., for product recommendation to the user.
- Google understands the user interest using various machine learning algorithms and suggests the product as per customer interest.

Vision Title 3



Virtual Personal Assistant



- We have various virtual personal assistants such as Google assistant, Alexa, Cortana, Siri.
- As the name suggests, they help us in finding the information using our voice instruction. These assistants can help us in various ways just by our voice instructions such as Play music, call someone, Open an email, Scheduling an appointment, etc.
- These virtual assistants use machine learning algorithms as an important part.

These assistant record our voice instructions, send it over the server on a cloud, and decode it using ML algorithms and act accordingly.



Online Fraud Detection



- Safe online transaction
- Feed forward Neural Network
- For each genuine transaction, the output is converted into some hash values, and these values become the input for the next round.
- For each genuine transaction, there is a specific pattern which gets change for the fraud transaction hence, it detects it and makes our online transactions more secure.



Medical Diagnosis



- In medical science, machine learning is used for diseases diagnoses.
- With this, medical technology is growing very fast and able to build 3D models that can predict the exact position of lesions in the brain.
- It helps in finding brain tumors and other brain-related diseases easily.



Automatic Language Translation



- machine learning helps us by converting the text into our known languages.
- Google's GNMT (Google Neural Machine Translation) provide this feature, which is a Neural Machine Learning that translates the text into our familiar language, and it called as automatic translation.
- The technology behind the automatic translation is a sequence to sequence learning algorithm, which is used with image recognition and translates the text from one language to another language.



THANK YOU



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QUESTIONS ??

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