REPORT

PRAGATI ENGINEERING COLLEGE

(ApprovedbyAICTE,PermanentlyAffiliatedtoJNTUK,KAKINADA&AccreditedbyNBA)

1-378,A.D.B.Road,Surampalem,NearPeddapuram-533437

“ Tensorflow and Deep Learning ”

Date: 26-02-2024.

Day: Monday.

Turing Club organised by the Dept. of CSE – AI&ML of Pragati Engineering College in association with Career Guidance Cell is organizing a **Tensorflow and Deep Learning** as part of Industry 4.0.

REGISTRATION MADE BYSTUDENTS:

S.NO	NAME	ROLL NO	BRANCH	SECTION
1	ASULA SREEJA	21A31A4201	CSE(AIML)	A
2	BAVISETTI LAKSHMI JAHNAVI	21A31A4202	CSE(AIML)	A
3	BOBBA VANITHA SRI	21A31A4203	CSE(AIML)	A
4	CHINNI RAJA RAJESWARI	21A31A4204	CSE(AIML)	A
5	CHINTAGUNTA ESWARI NAGA SAI PRIYA	21A31A4205	CSE(AIML)	A
6	CHITTURI SOWJANYA	21A31A4206	CSE(AIML)	A
7	DEVALLA SURYA NAGA LAXMI SAHITHI	21A31A4207	CSE(AIML)	A
8	DEVERAPU ADHITHI	21A31A4208	CSE(AIML)	A
9	INAPAKOLLA CHARMILA	21A31A4209	CSE(AIML)	A
10	INAPAKOLLA CHATHURYA	21A31A4210	CSE(AIML)	A
11	KAVALA SRAVYA	21A31A4211	CSE(AIML)	A
12	KOPPOJU TEJA RAMYASRI	21A31A4212	CSE(AIML)	A
13	KOTHAGALA VAMSIKA	21A31A4213	CSE(AIML)	A
14	KUNDA MIRIYAM NISSY	21A31A4214	CSE(AIML)	A
15	LALAM NIHA JYOTHI	21A31A4215	CSE(AIML)	A
16	MALLAVARAPU SIRI SATHVIKA	21A31A4216	CSE(AIML)	A
17	MANDRU SWARNA	21A31A4217	CSE(AIML)	A
18	MORTHA SUSHMA	21A31A4218	CSE(AIML)	A
19	NEHA SAI SRITHA AKELLA	21A31A4219	CSE(AIML)	A
20	PAPPALA NASIVI RAMYA ANJANI	21A31A4220	CSE(AIML)	A
21	PILLI BHANU DIVYASRI	21A31A4221	CSE(AIML)	A
22	REDDI USHA	21A31A4222	CSE(AIML)	A

23	SHAIK FARHA	21A31A4223	CSE(AIML)	A
24	SURLA LIKHITA	21A31A4224	CSE(AIML)	A
25	THORAM LASYA SRIVALLIKA	21A31A4225	CSE(AIML)	A
26	VATTIKUTI SAI JYOTHIKA CHOWDARY	21A31A4226	CSE(AIML)	A
27	YARLAGADDA ANITHA CHOWDARY	21A31A4227	CSE(AIML)	A
28	AGANTI KASI VISWANADH	21A31A4228	CSE(AIML)	A
29	BALLA LAKSHMI KRISHNA VAMSI	21A31A4229	CSE(AIML)	A
30	CHEDULURI MAHESH	21A31A4230	CSE(AIML)	A
31	GEDDAM ABHISEKHAR	21A31A4231	CSE(AIML)	A
32	GODAVARTHI RAM SUBHASH	21A31A4232	CSE(AIML)	A
33	HARI ABHILASH MORTHA	21A31A4233	CSE(AIML)	A
34	KALIDINDI BALA VENKATA ADITHYA	21A31A4234	CSE(AIML)	A
35	KAMBALA DEVI NAGA SRI ADITYA	21A31A4235	CSE(AIML)	A
36	KATAKAM CHARAN PRAVEEN KUMAR	21A31A4236	CSE(AIML)	A
37	KETHA DHANA VEERA CHAITANYA	21A31A4237	CSE(AIML)	A
38	KOMARTHI BANNY	21A31A4238	CSE(AIML)	A
40	KORA UDAY MEHER	21A31A4240	CSE(AIML)	A
41	KOTIPALLI SATYA SAI DURGA HARI PRASAD	21A31A4241	CSE(AIML)	A
42	KUCHARLAPATI VIJAYA KUMAR VARMA	21A31A4242	CSE(AIML)	A
43	KUNCHE VEERA VENKATA SAI KARTHIK	21A31A4243	CSE(AIML)	A
44	LOLLA BHUVAN SAI RAM	21A31A4244	CSE(AIML)	A
45	MEDURI MADHUR	21A31A4245	CSE(AIML)	A
46	MUTHANGI VENKATA SAI HARSHITH	21A31A4246	CSE(AIML)	A

47	NAVATEJ YELLAMELLI	21A31A4247	CSE(AIML)	A
48	PARIGA SRI ADITYA	21A31A4248	CSE(AIML)	A
49	PENTAPATI GANESH PRANAVA	21A31A4249	CSE(AIML)	A
50	POLEPALLI ANIL KUMAR	21A31A4250	CSE(AIML)	
51	POLISETTI HERAMBHA NAGA DATTA SANJEEV	21A31A4251	CSE(AIML)	A
52	RAMAVARAPU SAI HRUSHI	21A31A4252	CSE(AIML)	A
53	RAPETI ARYA VINAYAKA VENKATA SIVA SAI	21A31A4253	CSE(AIML)	A
54	SANKAR ADDALA	21A31A4254	CSE(AIML)	A
55	SATHI HEMANTH	21A31A4255	CSE(AIML)	A
56	SHAIK MOHAMMAD ASHIQ ILAHI	21A31A4256	CSE(AIML)	A
57	SHAIK SAAD	21A31A4257	CSE(AIML)	A
58	SREEPERAMBUDURU SATYA KUMAR	21A31A4258	CSE(AIML)	A
59	UPPALAPATI SIVA TARUN	21A31A4259	CSE(AIML)	A
60	VANAM VENKATA SAI SANJAY	21A31A4260	CSE(AIML)	A
61	VENTAPALLI SANDEEP	21A31A4261	CSE(AIML)	A
62	VILLA SUBHASH	21A31A4262	CSE(AIML)	A
63	YAGAM VENKATA SRINIVASA KARTHEEK	21A31A4263	CSE(AIML)	A
64	YALAMANCHILI PHANI SRI BHAVARAJA PRANEETH	21A31A4264	CSE(AIML)	A
65	YERRA LAKSHMI CHAKRADHAR	21A31A4265	CSE(AIML)	A
66	YERUBANDI SATYA SANTOSH KUMAR	21A31A4266	CSE(AIML)	A
67	CHEKKA GEETHA SRI	22A35A4201	CSE(AIML)	A
68	BANDANA DILEEP KUMAR	22A35A4202	CSE(AIML)	A
69	LANKE TULASI GURU CHARAN	22A35A4203	CSE(AIML)	A

ATTENDED STUDENT LIST:

PRAGATI ENGINEERING COLLEGE
(Autonomous)
B.Tech
Computer Science and Engineering (Artificial Intelligence & Machine Learning)
R-20

The list of students attended for this event.

S.No	Roll No.	Name of the Student	Year&Branch	Signature
1	21A31A42B2	V. L. Apoorva	CSE(AIML)B	V. L. Apoorva
2.	23A31A42E4	K. Manasa	CSE(AIML)C	
3	23A31A42E2	K. Anjani	CSE(AIML)-C	K Anjani.
4.	23A31A42D8	D. Tejaswini	CSE(AIML)-C	D. Tejaswini
5.	22A31A4209	N. K Aishwarya	CSE(AIML)-A	N. K Aishwarya.
6	23A35A4302	P. Ramya	CSE(AIML)-A	P. Ramya
7	22A31A4215	P. Hema Praneetha	CSE(AIML)-A	P. H. Praneetha
8	22A31A4216	S. Mahitha	CSE(AIML)-A	S. Mahitha..
9	22A31A4219	T. Pavani Durga	CSE(AIML)-A	T. Pavani durga
10	22A31A42E5	P. N.V.S. Sailaja	CSE(AIML)-C	P. N.V.S. Sailaja.
11	22A31A42D4	G. Lavanya	CSE(AIML)-C	G. Lavanya
12	22A31A42E7	P. S. S. Kanthi	CSE(AIML)-C	P. S. S. Kanthi
13.	22A31A42E6	P. Sowmya Sri	CSE(AIML)-C	P. Sowmya Sri.
14.	22A31A4267	B. SriRamya	CSE(AIML)-B	B. SriRamya
15	22A31A4282	T. Vaishnavi	CSE(AIML-B) T. Vaishnavi	T. Vaishu
16.	22A31A4286	Y. Lamiksha	CSE(AI&ML) B	Y. Lamiksha

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S.No	Roll No.	Name of the Student	Year&Branch	Signature
17	22A31A4265	A. Lalitha	II AIML	A.Lalitha
18	22A31A4290	V. Abhigna	II AIML	V. Abhigna
19	22A31A4291	V. Jaya Sri Amrutha	II AIML	V. Jaya Sri Amrutha
20	23A35A4212	V. Manimala	II AIML	V. manimala
21	22A31A4283	P. Suneetha	II AIML	P. Sunit
22	23A35A4211	K. Sai Sravani	II AIML	K. Sai Sravani
23	22A31A4279	M. Swetha	II AIML	Swetha
24	22A31A4276	L. Vaishitha	II AIML	L. V.N Sahyl
25	22A31A4286	K. Prudhvi Vinayak	II AIML	K. Prudhvi
26	22A31A4286	M. Karthik Verma	II AIML	M. Karthik

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S.No	Roll No.	Name of the Student	Year&Branch	Signature
1	23A31A42C2	O.Pradeep kumar	1 (CSM)	O.Pr
2	11 42J0	T.syam kumar	1 (CSM)	T. S. kumar.
3	42H9	M.SAI ESWAR	1 (CSM)	M. ESWAR
4	4249	M. Shyam Sundar	1 (csm)	M. Shyam Sundar.
5	4237	D. Nefru	1 (CSM)	D. Nefru
6	42D8	S-charan	1 (CSM)	SS. Cha
7	4219	P. Tejasri	1 (CSM)	P. Tejasri.
8.	4290	Sk. Ahmadunnisa	1 (CSM)	Sk. Ahmadunnisa.
9	4285	M. N. Sri Lakshmi	1 (CSM)	M. N. Sri Lak
10.	4266	A. Sharonrose	1 (csm)	A. Sharon
11.	4283	M.L. Apoorva	1 (CSM)	M.L Apoorva.
12.	4295	T. Renukadevi	1 (CSM)	T. Renukadevi.
13.	4293	T. Leela	1 (CSM)	T. Leela.
14.	4232	A. Hemanth	1 (CSM)	A. Hemanth
15.	42I2	N. V. Poornachandra	1 (CSM)	N. V. Poo
16.	4299	G. D. E. Ashok	I (CSM)	G. D. E. Ashok

Content delivered in the event :

“ Tensorflow and Deep Learning ”

Deep Learning is a rapidly evolving field which is bound to make some waves in the technical field. Among the vast uses of Deep Learning, some are exceptionally useful in present day situations.

To whom is this seminar

The goal of this webinar is to provide a comprehensive understanding of Recurrent Neural Networks (RNNs) and their applications in deep learning. RNNs are a crucial component of modern machine learning, with a wide range of applications in various domains, including natural language processing, speech recognition, time series analysis, and more. This report outlines the objectives and key takeaways of the webinar, which aims to equip attendees with the knowledge and tools to harness the potential of RNNs effectively.

Understanding Recurrent Neural Networks

In this section, the webinar will focus on introducing RNNs, their architecture, and how they differ from traditional feed forward neural networks. Key topics to be covered include:

- The concept of sequential data and its relevance in real-world applications.
- The architecture of a basic RNN and its recurrent connections.
- The vanishing gradient problem and its impact on training RNNs
- Various RNN variants, such as Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU), and their advantages.

WHAT ARE TFUGS?

TENSORFLOW USER GROUPS (TFUGS) ARE COMMUNITY-DRIVEN MEETUPS OR GATHERINGS THAT FOCUS ON TENSORFLOW AND ITS APPLICATIONS IN MACHINE LEARNING.

THESE GROUPS BRING TOGETHER INDIVIDUALS WITH DIVERSE BACKGROUNDS, INCLUDING DEVELOPERS, RESEARCHERS, STUDENTS, AND PROFESSIONALS, WHO SHARE A COMMON INTEREST IN TENSORFLOW.

TFUGS SERVE AS PLATFORMS FOR KNOWLEDGE EXCHANGE, COLLABORATION, AND NETWORKING WITHIN THE MACHINE LEARNING COMMUNITY.

PARTICIPANTS IN TFUGS OFTEN INCLUDE BOTH BEGINNERS SEEKING TO LEARN MORE ABOUT TENSORFLOW AND EXPERIENCED PRACTITIONERS LOOKING TO SHARE THEIR EXPERTISE.

TFUGS TYPICALLY ORGANIZE A VARIETY OF EVENTS, SUCH AS WORKSHOPS, TALKS, HACKATHONS, AND STUDY GROUPS, TO CATER TO THE DIVERSE INTERESTS AND SKILL LEVELS OF THEIR MEMBERS.

COMMUNITY COLLABORATION:

- SRIKAKULAM
- VIZAYANAGARAM
- VISAKHAPATNAM
- EAST GODAVARI
- WEST GODAVARI
- KRISHNA
- KURNOOL

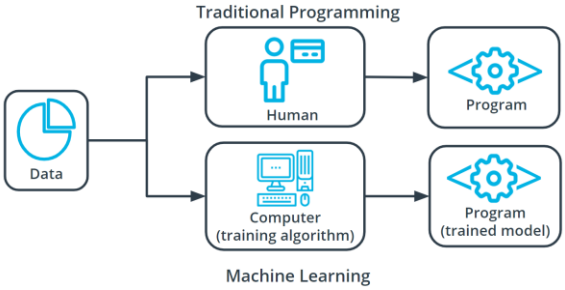
TENSORFLOW USER GROUP(TFUG)
EAST GODAVARI

DISTRICT LEAD: Ch. PRIYA(21A31A4205)
COLLEGE LEAD: A. NEHA(21A31A4219)

LEARNING PATH

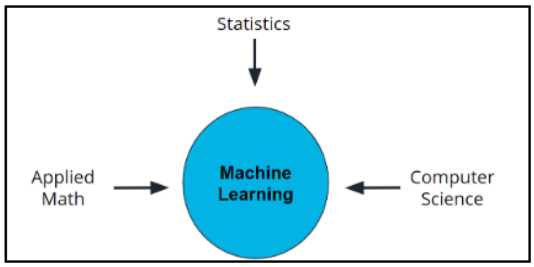
- TRADITIONAL PROGRAMMING
- MACHINE LEARNING
- DEEP LEARNING
- TENSOR FLOW
- APPLIED SCIENTIST

TRADITIONAL PROGRAMMING VS MACHINE LEARNING



- Traditional problem-solving entails manually coding solutions, which can be tedious due to the multitude of edge cases, as exemplified by tasks like detecting cats in images.
- In contrast, machine learning streamlines this process by abstracting solutions into adaptable models. These models are refined through training algorithms, enabling adjustment to real-world data.
- By automating statistical reasoning and pattern-matching, machine learning facilitates the generation of predictions or patterns to address complex problems more efficiently.

MACHINE LEARNING (ML):



- It is a broader concept that involves the development of algorithms and statistical models that enable computers to perform a specific task without explicit programming.
- ML encompasses various techniques, including supervised learning, unsupervised learning, and reinforcement learning.

TERMINOLOGY IN ML :

Supervised Learning:
It is a type of machine learning where the algorithm is trained on a labelled dataset, meaning that the input data is paired with corresponding output labels. The goal is for the model to learn the mapping from inputs to outputs, making predictions or classifications on new, unseen data

Unsupervised Learning:
In this type of learning, the algorithm is given unlabeled data and must find patterns, relationships, or structures within the data without explicit guidance. Unsupervised learning is often used for tasks such as clustering, dimensionality reduction, and density estimation.

Reinforcement Learning:
This paradigm involves an agent that learns to make decisions by interacting with an environment. The agent receives feedback in the form of rewards or penalties based on its actions, and the goal is to learn a policy that maximises the cumulative reward over time.

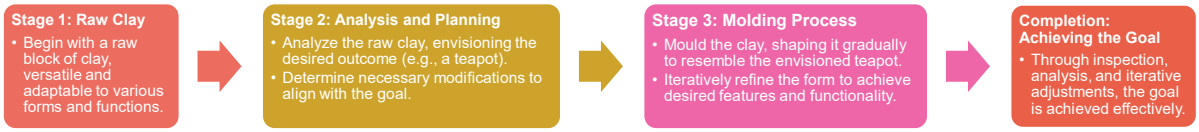
REVIEWING THE CLAY ANALOGY OF MACHINE LEARNING

• You can understand the relationships between these components by imagining the stages of crafting a teapot from a lump of clay

Machine Learning Model Algorithm

Model Training Algorithm

Model Inference



MODEL TRAININGALGORTITHM WORK THROUGH AN ITERATIVE PROCESS

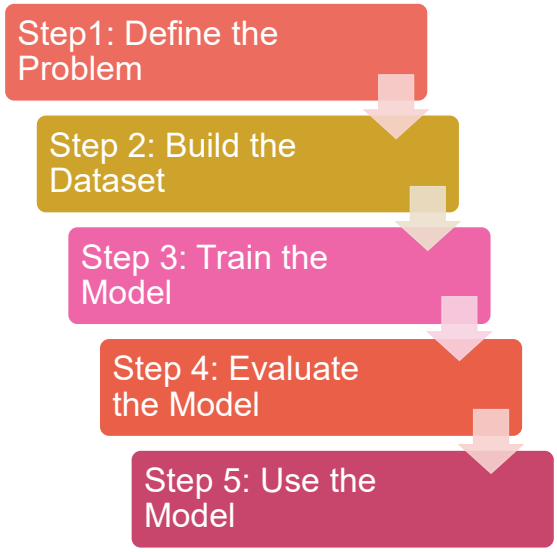
Model Training:

- **Analogous to Teapot Crafting:**
  - Start with raw material (data) and envision the teapot (desired model).
  - Mold the clay (adjust model) iteratively to match the teapot shape.
  - Repeat until the teapot meets expectations.
- **In Machine Learning:**
  - Similarly, adjust the model parameters to fit the data.
  - Iterate until the model achieves desired performance.

Model Inference:

- **Using the Teapot:**
  - Once crafted, the teapot is ready for use.
  - Similarly, the trained model is ready for predictions or classifications.
- **In Machine Learning:**
  - Apply the trained model to new data for predictions.
  - Like using the teapot for tea, the model serves its purpose in real-world applicat

STAGES OF DEVELOPIN G A MODEL



TRAIN THE MODEL

The **first step in model training** is to **randomly split** the dataset.

This allows you to keep some data hidden during training so that the data can be used to evaluate your model before you put it into production. Splitting your dataset gives you two sets of data:

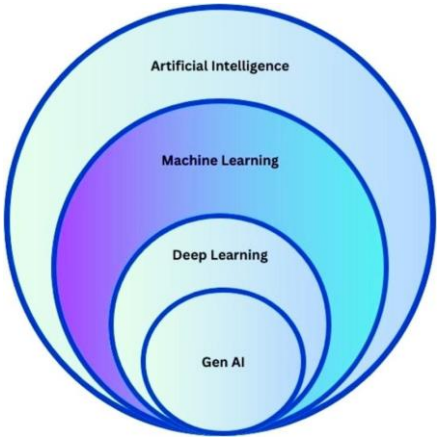
Training dataset: The data on which the model will be trained. Most of your data will be here. Many

Test dataset: The data withheld from the model during training, which is used to test how well your model will generalize to new data.

The model training algorithm iteratively updates a model's parameters to **minimize some loss function**.

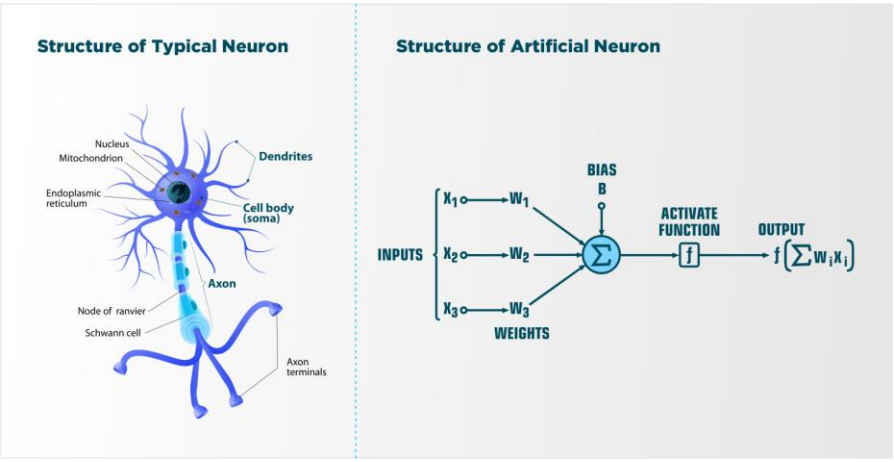
Model parameters: Model parameters are settings or configurations that the training algorithm can update to change how the model behaves.

- **Loss function**: A loss function is used to codify the model's distance from a goal.

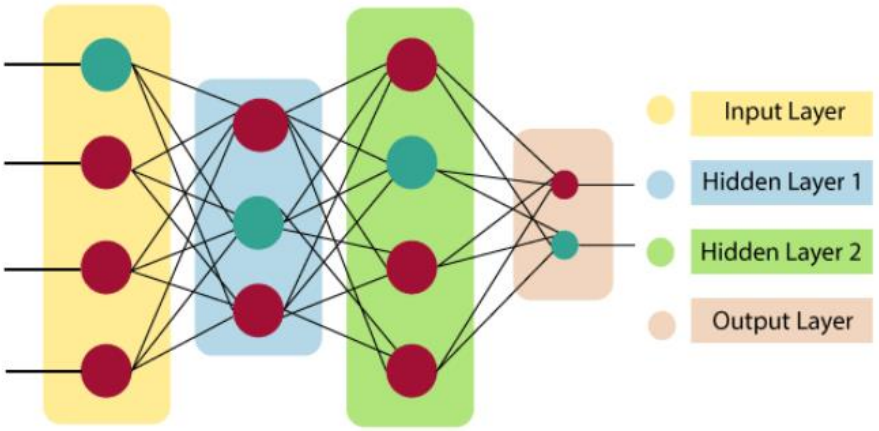


- **Machine Learning (ML):** It is a broader concept that involves the development of algorithms and statistical models that enable computers to perform a specific task without explicit programming. ML encompasses various techniques, including supervised learning, unsupervised learning, and reinforcement learning.
- **Deep Learning (DL):** It is a subset of machine learning that specifically focuses on neural networks with multiple layers (deep neural networks). Deep learning involves training neural networks on large amounts of data to automatically learn and make decisions without explicit programming.

BIOLOGICAL NEURON VS ARTIFICIAL NEURON



Artificial Neural Network primarily consists of three layers:

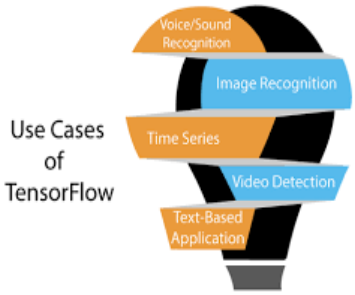


FRAMEWORKS

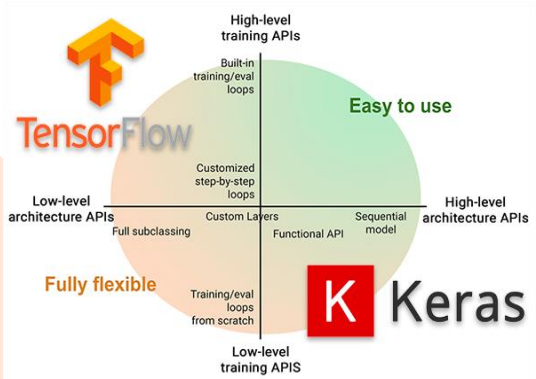
- TensorFlow
- PyTorch
- Keras
- Theano
- Caffe
- MXNet
- Chainer
- Deeplearning4j
- Microsoft Cognitive Toolkit (CNTK)
- Paddle Paddle

INTRODUCTION TO TENSORFLOW:

- TensorFlow is an open-source machine learning framework developed by the Google Brain team.
- It provides a comprehensive platform for building and deploying machine learning models, including deep learning neural networks.
- TensorFlow supports a wide range of applications, from image and speech recognition to natural language processing and reinforcement learning.
- Released in 2015, TensorFlow has become one of the most popular and widely used frameworks in the machine learning and artificial intelligence communities.
- Its flexibility allows developers to build models for various purposes, ranging from research and experimentation to production-grade applications.



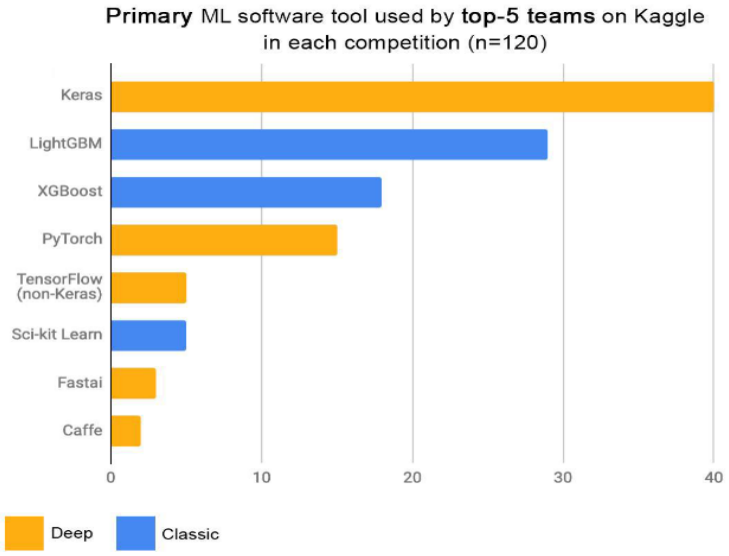
INTRODUCTION TO TENSORFLOW& KERAS:



- TensorFlow is the most famous symbolic math library used for creating neural networks and deep learning models.
- TensorFlow is very flexible and the primary benefit is distributed computing.
- Keras runs on top of open source machine libraries like TensorFlow.

Benefits

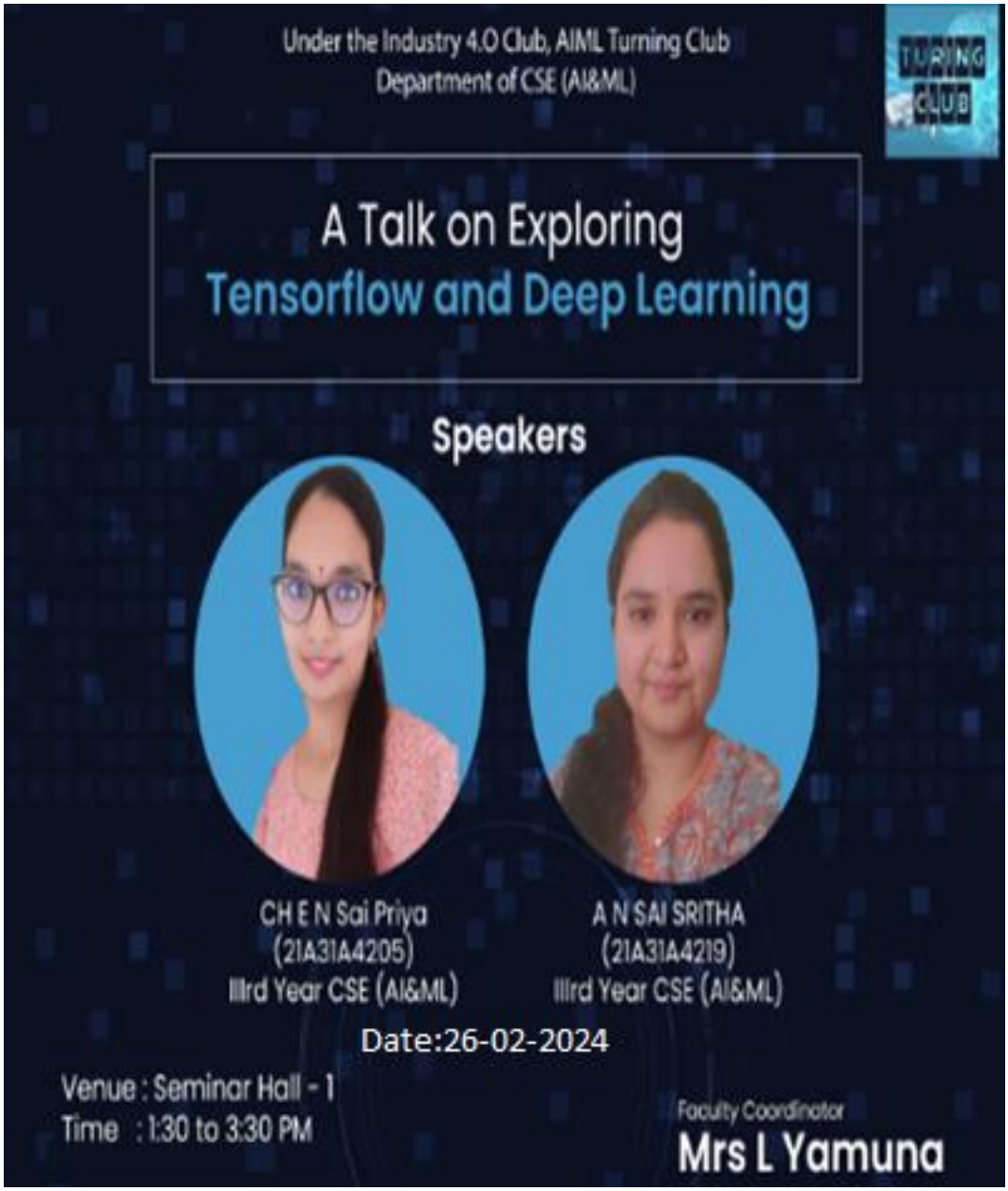
- Keras is highly powerful and dynamic framework and comes up with the following advantages −
- Larger community support.
- Easy to test.
- Keras neural networks are written in Python which makes things simpler.
- Keras supports both convolution and recurrent networks.



SKILLS TO BECOME AN APPLIED SCIENTIST

- **Programming Skills:** Develop strong programming skills, particularly in languages commonly used in data science and machine learning such as Python, R, and/or MATLAB.
- **Mathematics and Statistics:** Deepen your understanding of mathematical concepts like linear algebra, calculus, probability, and statistics.
- **Machine Learning Algorithms:** Understanding of various machine learning algorithms including supervised and unsupervised learning, deep learning, reinforcement learning, and their applications.
- **Data Analysis:** Ability to collect, clean, and preprocess data for analysis, as well as perform exploratory data analysis (EDA) to extract insights.
- **Big Data Technologies (Optional):** Familiarity with big data technologies like Apache Hadoop, Spark, or distributed computing frameworks for handling large-scale datasets.

PHOTOS:


Under the Industry 4.0 Club, AIML Turning Club
Department of CSE (AI&ML)
TURING CLUB
A Talk on Exploring
Tensorflow and Deep Learning
Speakers
CH E N Sai Priya
(21A31A4205)
IIIrd Year CSE (AI&ML)
A N SAI SRITHA
(21A31A4219)
IIIrd Year CSE (AI&ML)
Date:26-02-2024
Venue : Seminar Hall - 1
Time : 1:30 to 3:30 PM
Faculty Coordinator
Mrs L Yamuna


GPS Map Camera
Surampalem, Andhra Pradesh, India
1-378, ADB Road, Surampalem Near Kakinada, Surampalem, Andhra Pradesh 533437, India
Lat 17.083448°
Long 82.063633°
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Google