



*Department of  
Computer Science & Engineering*

## Vision:

**"To be Successful Engineer in both Computer Science & Engineer and Artificial Intelligence & machine learning engineer , building competence through students centric learning for Research & development, Innovations, Self emplyment and Society needs**

## Objective:

- TO LEARN BRIEF ABOUT AI&ML WERE THE STUDENTS ARE LEARNING THE IMPORTANCE OF IT IN FUTURE .
- TO CREATE A PLATFORM FOR RESEARCH & DEVELOPMENT, ROBOTICS , MACHINE LEARNING AND CODINGS.
- TO PROVIDE EXPOSURE TO STUDENTS TO LATEST



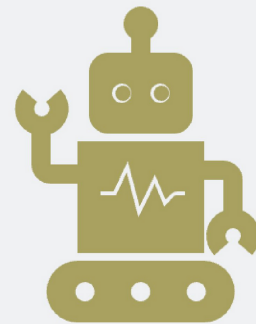
**Guest Lecture**

# Ai and Its Applications

## Introduction

What is Ai?

- **Artificial intelligence (AI)**, also known as machine intelligence, refers to the ability of machines to exhibit intelligence like that of humans and animals, as opposed to the natural intelligence displayed by living beings.
- The concept of AI encompasses machines that are capable of imitating cognitive functions typically associated with human minds, including learning and problem-solving.



## Few Terms



**Algorithms:** Algorithms are precise instructions that can be executed by a mechanical computer. Within the field of artificial intelligence, numerous algorithms are designed to learn from data and even generate additional algorithms.



**Machine learning:** Machine learning is a branch of artificial intelligence that enables systems to learn and enhance their performance through experience, without explicit programming.



**Neural networks:** Artificial neural networks (ANN) are computer systems that are loosely based on the networks of neurons in our brains. They have artificial neurons called nodes, and these nodes are connected in a way like the connections between neurons in a biological brain. Just like the synapses in our brain, these connections allow signals to be passed from one artificial neuron to another.



### Machine Learning

Machine learning is a branch of AI that focuses on training computer systems to learn from data and improve their performance over time.

It involves developing algorithms that allow machines to analyze and interpret large datasets, identify patterns, and make predictions or decisions based on the learned patterns.

Examples of machine learning algorithms include decision trees, support vector machines, and random forest.



### Deep Learning

Deep learning is a subfield of machine learning that uses artificial neural networks, inspired by the structure and functioning of the human brain.

It involves training deep neural networks with multiple layers to automatically learn and extract complex representations of data.

Deep learning has demonstrated remarkable success in areas such as image and speech recognition, natural language processing, and autonomous driving.



### Natural Language Processing (NLP):

Natural language processing focuses on enabling machines to understand, interpret, and generate human language.

It involves techniques to process and analyze text or speech data, enabling tasks such as language translation, sentiment analysis, chatbots, and voice assistants.

NLP techniques include language modeling, part-of-speech tagging, named entity recognition, and sentiment analysis.

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## AI Techniques



# AI and its Applications

## Diagnosis and Medical Imaging Analysis:

AI systems can analyze medical images, such as X-rays, CT scans, and MRIs, to assist in the detection and diagnosis of various conditions.

By leveraging deep learning algorithms, AI can quickly and accurately identify abnormalities, tumors, or other patterns that might be difficult to detect with the naked eye.

This enables healthcare professionals to make more precise diagnoses and provide timely treatment.

## Finance:

AI helps in aiding banks perform tasks such as fraud detection, loan eligibility and to a certain extent enables them to make decisions about loan approval based on factors such as CIBIL score, income, age and occupation.

AI also helps institutions such as Hedge Funds or Wealth Management Funds in performing algorithmic trading where indicators can be built to place orders within a milliseconds and aids as a tool in Risk Management

## Retail:

AI plays a crucial role in helping the retailers understand the behavior of the client. The reason we get recommendations on websites such as amazon, flipkart or even Instagram is due to the AI recommendation algorithms working in the backend.

AI also helps the retailers in forecasting the demand of the customers by using basic techniques in order to better manage their inventory.

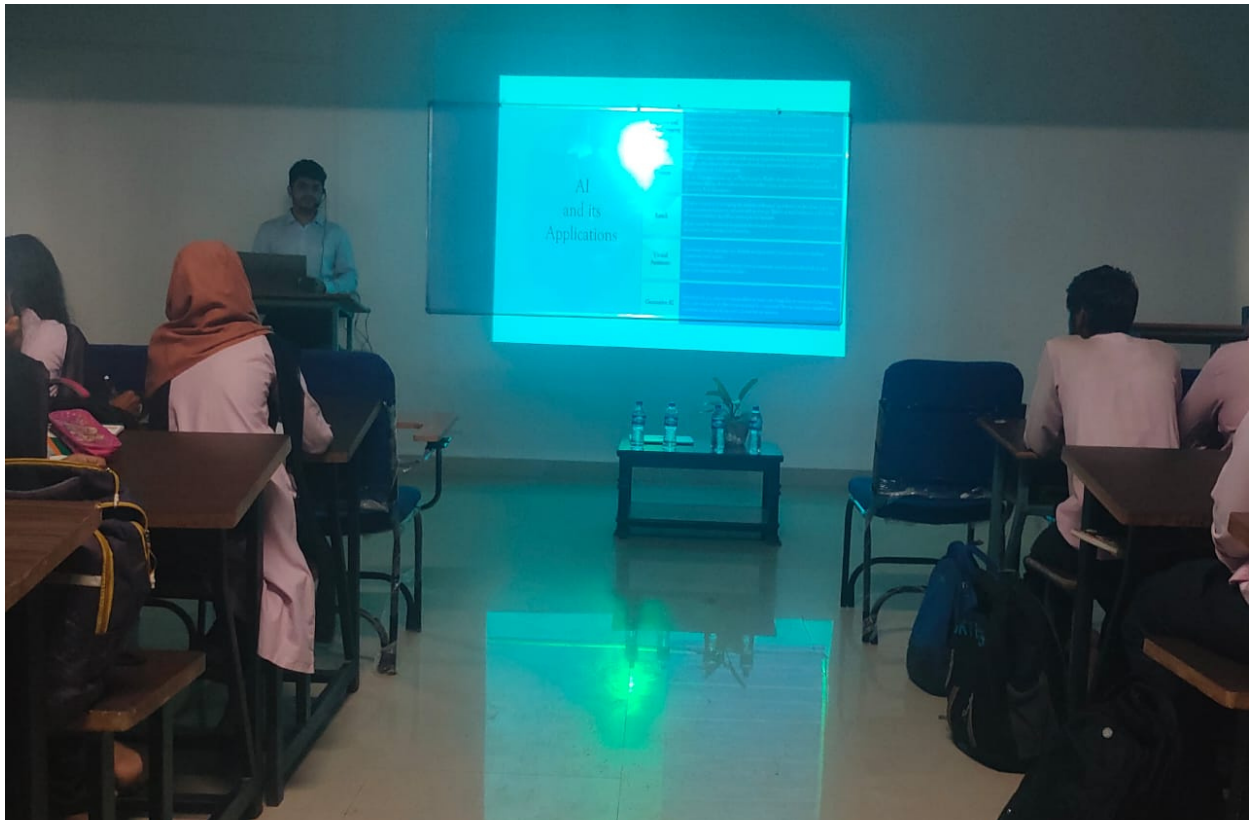
## Virtual Assistants

AI-powered virtual assistants and chatbots are being used to enhance customer/student engagement and support.

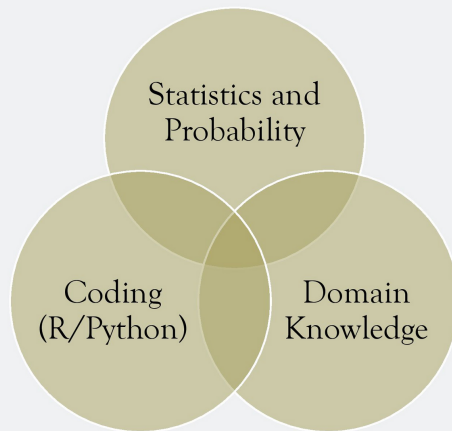
These intelligent systems can answer common questions, provide personalized advice, and assist with numerous amounts of tasks.

## Generative AI

Generative AI is a computer's special ability to make new things like art or stories by learning from other examples. It's like a creative friend for computers! But we need to be careful because sometimes it can make things that look real but are not true.



# How do we get started?

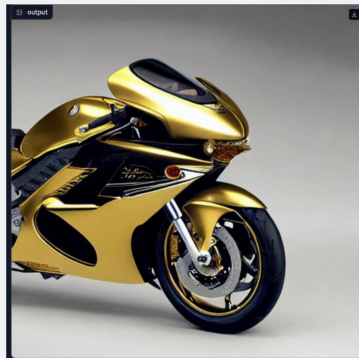


# Projects done by using AI

## Personal Project: Text to Image using AI

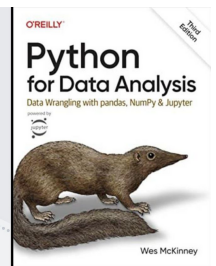
Done Generative Ai and Stable Diffusion

<https://434563b90b322785cf.gradio.live>



## Good ways to begin learning

- [Udemy](#)
- [Coursera](#)
- [Kaggle \(Hackathons\)](#)
- <https://github.com/Moataz-Elmesmary/Data-Science-Roadmap>
- [https://www.udemy.com/course/an-introduction-to-data-science/?ranMID=39197&ranEAID=JVFxdTr9V80&ranSiteID=JVFxdTr9V80-W6uk5iS6\\_oAp5PUIDUlr9Kw&LSNPUBID=JVFxdTr9V80&utm\\_source=aff-campaign&utm\\_medium=udemyads](https://www.udemy.com/course/an-introduction-to-data-science/?ranMID=39197&ranEAID=JVFxdTr9V80&ranSiteID=JVFxdTr9V80-W6uk5iS6_oAp5PUIDUlr9Kw&LSNPUBID=JVFxdTr9V80&utm_source=aff-campaign&utm_medium=udemyads)
- [https://www.coursera.org/professional-certificates/ibm-data-science?irclickid=VQ%3AxyVQ32xyIRVO3luXUJSxQ2Ukfz5B3dqVAd2M0&irgwc=1&utm\\_medium=partners&utm\\_source=impact&utm\\_campaign=3294490&utm\\_content=b2c](https://www.coursera.org/professional-certificates/ibm-data-science?irclickid=VQ%3AxyVQ32xyIRVO3luXUJSxQ2Ukfz5B3dqVAd2M0&irgwc=1&utm_medium=partners&utm_source=impact&utm_campaign=3294490&utm_content=b2c)
- <https://www.amazon.in/Python-Data-Analysis-Wes-McKinney-ebook/dp/B0B9HY3WX7>
- <https://www.amazon.in/Think-Bayes-Allen-B-Downey/dp/1449370780>





# Ethics



# AI



## Ethics in Ai



**PRIVACY AND DATA SECURITY:** PROTECT DATA PRIVACY AND ENSURE ROBUST DATA SECURITY. (NO DATA LEAKAGES)



**BIAS AND FAIRNESS:** IDENTIFY AND MITIGATE BIASES TO ENSURE PROPER OUTCOMES. APPROPRIATE DATA COLLECTION AND RECEIVING FEEDBACK

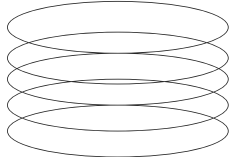
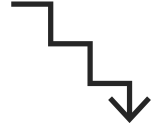


**TRANSPARENCY AND EXPLAINABILITY:** PROMOTE TRANSPARENCY AND DEVELOP METHODS TO EXPLAIN AI-GENERATED OUTCOMES. (NO BLACK BOX)

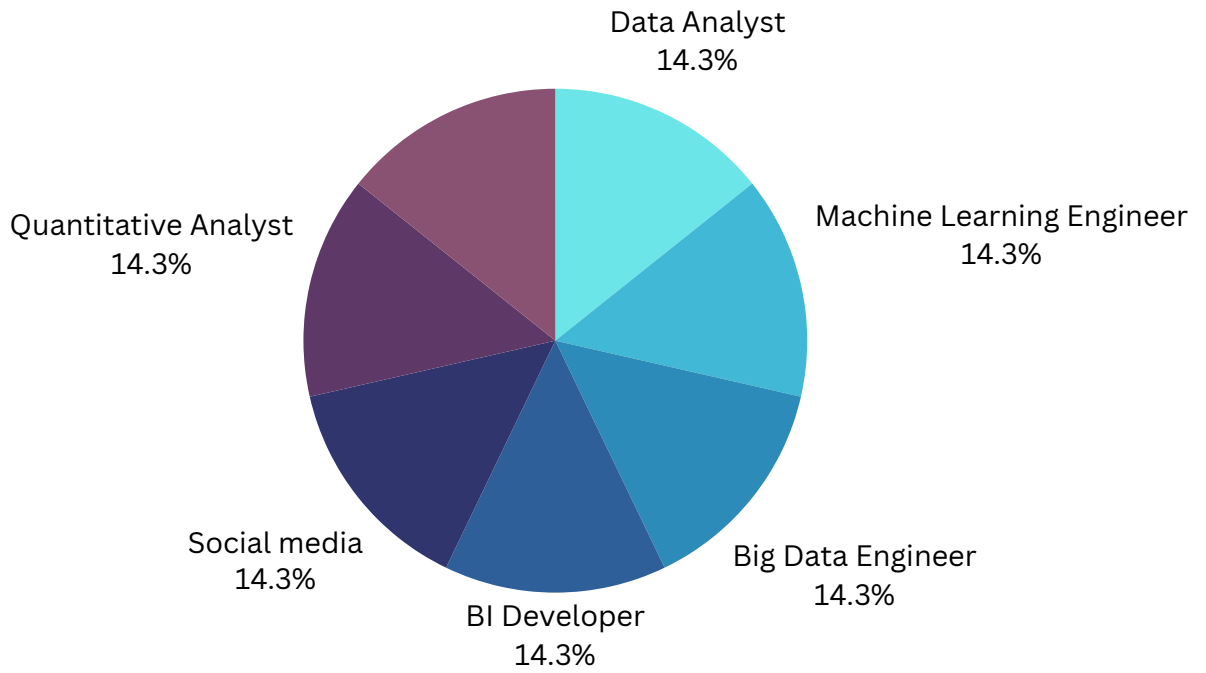




# Career



# Paths in AI





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Thank you!



## Outcomes

- **Students got Brief information about AI and its applications.**
- **Students learned about AI Techniques and Algorithm.**
- **Students get to start build their future in AI&ML.**
- **Students learned about project build using AI.**

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