

# Artificial Intelligence & Generative AI Workshop

By Techgyan Technologies

This workshop has been designed to provide a holistic learning experience within a single day. The curriculum balances theoretical knowledge and hands-on practice, ensuring participants gain both foundational understanding and practical expertise. Interactive sessions, real-world use cases, and collaborative hackathons help embed key concepts effectively. The structured flow, from basic concepts to advanced applications, caters to diverse learning paces while promoting teamwork and problem-solving. This methodology ensures a robust, engaging, and outcome-driven learning journey for all participants.

## Session 1: Welcome & Icebreaker (30 min)

- Welcome & Introduction (15 minutes)
- Brief overview of workshop agenda and objectives.
- Set the stage for learning and collaboration.
- History of AI & Icebreaker Activity (45 minutes)
- Alan Turing and the Turing Machine.
- Evolution of AI and key milestones.
- The Turing Test and its significance.
- Participants share examples of AI in their personal/professional lives.
- Explore examples of AI in daily life (spam filters, recommendations, camera filters, etc.).

## Session 2: What is AI and How AI Problem is resolved? (30 Min)

- Core Concepts Overview
- Difference between AI, Machine Learning (ML), Deep Learning (DL), and Generative AI (GenAI).
- What are different technologies used to implement these concepts
- How to solve any problems using AI
  - Finding Data
  - Selecting best model
  - Testing
  - Training

## Session 3: Core Concepts of AI (1 Hour)

- Machine Learning Basics
- Overview of Supervised, Unsupervised, and Reinforcement Learning.

- Categorize examples into ML types.
- Hands-On Activity
- Use Google's Teachable Machine to train a simple ML model (e.g., pose detection or image classification).

## **Session 4: Exploring Use Cases with Teachable Machine (1 Hour)**

- Discussion
- Applications of image, pose, and sound detection.
- Preparation for Hackathon
- Brainstorm additional use cases:
  - Fitness Activity Tracker: Train a model to classify and count exercises (e.g., squats, push-ups).
  - Plant Disease Detection: Train a model to identify plant diseases based on leaf patterns.
  - Custom Hand Gesture Controls: Train a model to control devices using gestures like thumbs-up or open palm.

## **Session 5: Exploring hugging face (1 Hour)**

- Intro to Transformers & Model Hub – Explore transformers, pre-trained models, tokenization, and pipelines (classification, Q&A, translation).
- Sentiment Analysis & Summarization – Analyze emotions in text and generate concise summaries using NLP models.
- Advanced Use Cases – Build Q&A systems, extract named entities, and generate AI-powered content.
- Deploying AI Models – Integrate Hugging Face models into applications and explore fine-tuning.

## **Session 6: Building AI Applications (1 Hour)**

- Hands-On Chatbot Development – Build a conversational AI chatbot using Hugging Face or similar platforms, integrating custom intents and responses for real-world applications.
- Advanced AI Integration – Connect the chatbot with external APIs & databases for dynamic and context-aware responses.
- Local vs. Cloud-based LLM Solutions – Analyze performance, cost, and scalability differences between on-premise vs. cloud-hosted AI models.
- Fine-Tuning & Optimization – Demonstrate LLM fine-tuning for domain-specific tasks and optimizing AI efficiency.
- Exploring Next-Gen AI – Discuss multi-modal AI (text + voice + image), AutoGPT, RAG-based chatbots, and AI agents for enterprise automation.

## **Session 7: AI Hackathon (1.5 Hour)**

- Team Activity
- Solve real-world problems using Teachable Machine.

- Each team creates a working model and discusses its real-world application.
- Resources Provided
- Notebooks and step-by-step instructions to complete tasks.

## **Session 8: Wrap-Up & Reflection (15 Minutes)**

- Review the day's activities and key learnings.
- Q&A Session
- Open discussion for clarifications.

## **Expected Outcomes:**

By the end of this workshop, attendees will:

- Understand the core concepts of AI, ML, DL, and Generative AI.
- Recognize the difference between various AI technologies and their real-world applications.
- Develop skills to train simple AI models using tools like Google's Teachable Machine and Hugging Face.
- Create and optimize AI solutions, such as AI-powered chatbots and context-aware systems.
- Gain hands-on experience through a culminating AI Hackathon, applying learned concepts to solve real-world problems.

## **Who Should Attend:**

This workshop is ideal for:

- Professionals looking to integrate AI into their workspaces.
- Students and educators seeking practical experience with AI technologies.
- Enthusiasts curious about the current and future landscape of AI.

Join us for a day packed with learning, innovation, and discovery, and leave empowered to harness the potential of AI in your personal and professional lives. Whether you're a beginner aiming to get your feet wet or an experienced professional looking to deepen your expertise, this workshop will provide valuable insights and practical skills in AI.