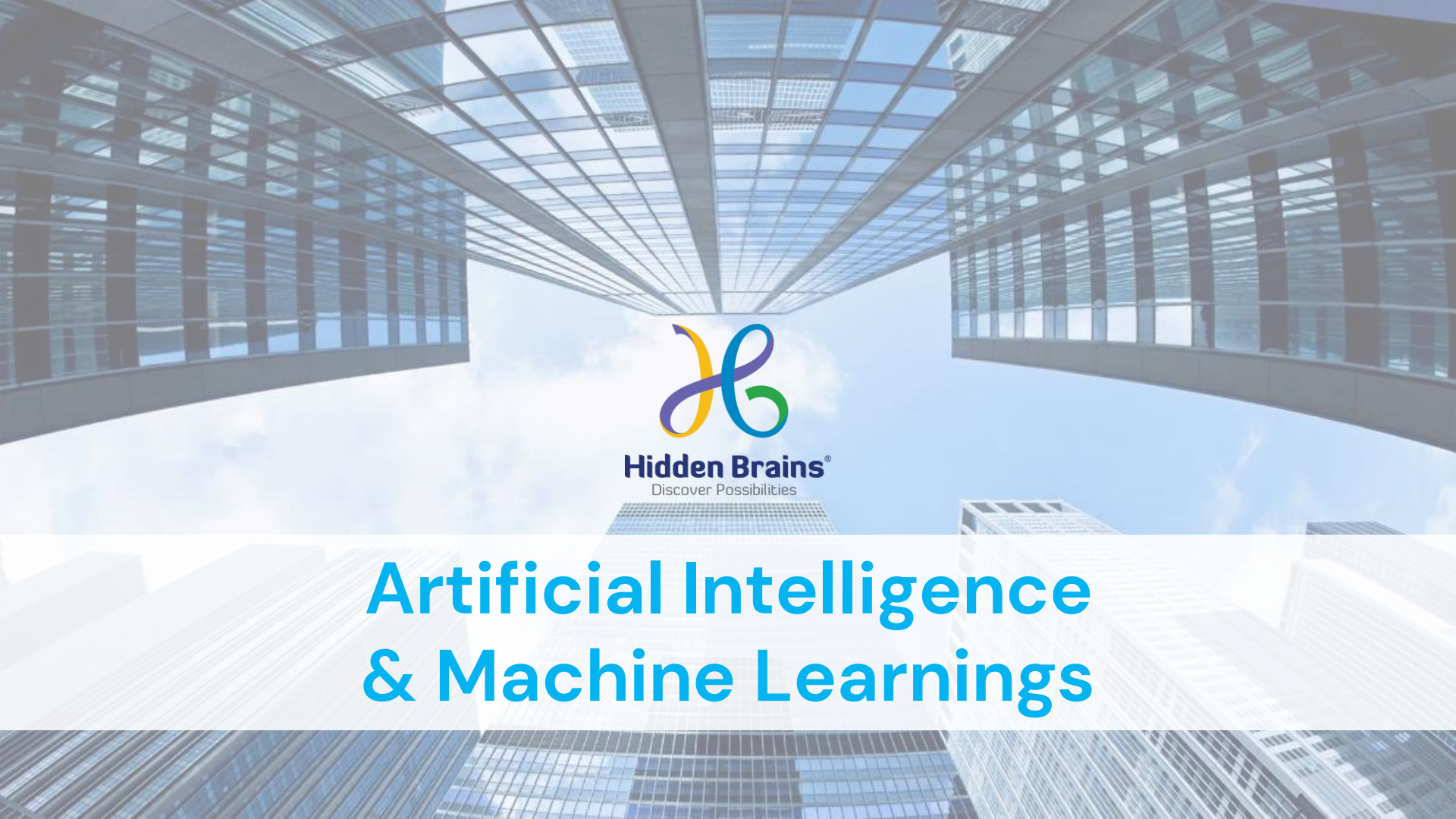

Artificial Intelligence & Machine Learnings

What is AI & ML

Artificial Intelligence

- Artificial Intelligence refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving

Machine Learning

- Machine learning is the study of computer algorithms that allow computer programs to automatically improve through experience. Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed.

AI Assistance for Farmer to Predict Crop Diseases

Business Need

- Our Client is a scientist and assistant professor of Entomology and Biology.
- With his knowledge acquired in Entomology he decided to help farmers in developing countries and thus started research in a specific region where development is much needed and identified the most important crop of that region i.e. Cassava. Almost 500 Million people rely on this crop as an alternative crop if other crops fail.
- To support them, our client started gathering all the information needed to plot them in software that can predict the disease to prevent the crop failure at the early stage of disease.

AI Assistance for Farmer to Predict Crop Diseases

Hidden Brains Achieved Need

- We started with an idea to implement Artificial Intelligent application that can capture image of the leaf and predict the possibility of disease. Created a Mobile application that allows blended model where images are examined by AI and human intelligence through cloud system.
- Integrated an AI based ChatBot [with NLP skills] to conduct conversation via auditory or textual methods and help farmers with instant knowledge base.
- With the help of image and data set shared by client, we create crop health knowledge base as open access library and eventually it now became the largest crop knowledge base in the world which is supported by Google.

AI Assistance for Farmer to Predict Crop Diseases

Hidden Brains Achieved Need

- With the help of Google's Tenser-flow Machine learning algorithm is implemented to provide adequate information about the disease probability in real time while scanning the plant.

Face Recognition using Machine Learning

Business Need

- To gauge the growing impact of AI on facial recognition technology across multiple business units, our client came up with need to implement Facial recognition software to replace with existing biometric installed.
- Key need is to build a software application that should be capable of uniquely identifying or verifying a person by comparing and analyzing patterns based on the person's facial contours.
- Facial recognition is mostly used for security purposes, though there is increasing interest in other areas of use. In fact, facial recognition technology has received significant attention as it has potential for a wide range of application related to law enforcement as well as other enterprises.

Face Recognition using Machine Learning

Hidden Brains Achieved Need

- After the Apple's introduction to Face ID, all the people around the globe knows what the Face id is and how it works. We followed to build our own face recognition system.
- Just like FaceBook is asking to tag friends to collect data of person, we have an Attendance system with tablet device [without using any 3rd party camera].
- We have created an application for Android Tablet where it opens the camera and detect employee ID from its face in real time.

Face Recognition using Machine Learning

Hidden Brains Achieved Need

- After creating dataset, we did machine learning to solve our problem. We feed our dataset into convolutional neural network and generated embedding which we fed into K-Nearest Neighbour algorithm to group all the employees with their Euclidean distance and labelled each with their employee id.
- We have collected all the photos of the employees from a business unit for few old months. Filtered those images and build the dataset of thousands of images (40-45 images per person).

Inventory Management Business

Business Need

- A known problem for ecommerce is the businesses to predict the demand which uncertain in this industry.
- This becomes a most promising challenge for our customer to anticipate demand on daily basis for different type of products they sell in the store.

Inventory Management Business

Hidden Brains Achieved Need

- Deep Neural network deep neural network (DNN) is an artificial neural network (ANN) with multiple layers which helps the algorithm to find the correct mathematical manipulation to turn the input into the expected output, whether it is a linear relationship or a non-linear relationship.
- Introducing Deep neural network learning will scrutinize most detailed historical sales data and will consider multiple diverse factors to get best output.
- Then it will apply a loss function that will calculate holding costs against shortage costs for the projected inventory figure to return the optimal one. This will further help the Store manager to get the right prediction for ordering categorized materials from supplier as per predicted demand.

Inventory Management Business

Hidden Brains Achieved Need

- We further executed more complex neural networking to feed diverse factors includes latest trends, week days, seasonality, Influence of holidays and festivals, Influence of promotion, store locations, weather conditions, etc.
- Within 3 months of implementation with noticed the predictions are precise and likely to real world figures calculated and observed.