iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** IV **Month of publication:** April 2022

DOI: https://doi.org/10.22214/ijraset.2022.41529

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue IV Apr 2022- Available at www.ijraset.com

Machine Learning in Tourism

Shrishail Rugge
Department of Diploma in Computer Engineering, Second Year, Sharad Institute of Technology, Polytechnic Yadrav, Ichalkaranji, Kolhapur, Maharashtra, India

Abstract: ***Machine Learning is a subset branch of Artificial Intelligence (AI) which focuses to imitate the way humans learn or behave by using certain data and algorithms which gradually help in improving its accuracy. The tourism data consists of various images, texts, statistics, maps and certain landmarks and co-ordinates of the same.***
Keywords: ***Tourism, Machine Learning, Recommender System, Co-ordinate analysis, demand forecasting.***

I. INTRODUCTION

Machine Learning is a process in which machines learn from various types of data to make precise predictions in various fields to improve accuracy, to understand demand forecasting, etc. For any country, tourism industry has proven to be one of the most profitable and economy boosting industry. There are many sub-fields in tourism which require more accuracy and precision, and if achieved, it can result in massive growth of the industry. Machine Learning in tourism helps to avoid confusion and results in more convenient way of providing more advanced facilities to the tourism industry.

II. MACHINE LEARNING

In 1950, Arthur Lee Samuel developed a program for playing checkers. The amount of memory was very small, so Samuel initiated alpha-beta pruning. Number of mechanisms were developed for making his program more compatible and better. Arthur Lee Samuel first came up with the phrase “Machine Learning” in 1952. Machine Learning is a science of programming machines (Computers, Smartphones, etc) that works to improve performance or helps in making more accurate predictions. Machine Learning is found to be applicable in many fields all around. Machine Learning has branched into numerous subfields such as supervised, unsupervised, semi supervised and reinforcement.

III. MACHINE LEARNING IN TOURISM : NECESSARY DATA

ML is a branch of Artificial Intelligence which relies on certain algorithms for predicting and making human actions or implementing modern technology.

1) Necessary Data in ML – Photos, statistical data, location co-ordinates, information, pinpoint location landmarks, graphs of tourism, maps, statistical data of tourism profit and loss, the number of arrivals published by World Tourism Organization in yearbook of Tourism Statistics.

IV. MACHINE LEARNING IN TOURISM : STAGES OF TRIP

Machine Learning in tourism can be used for various trip stages like Pre Trip, During Trip and Post Trip.

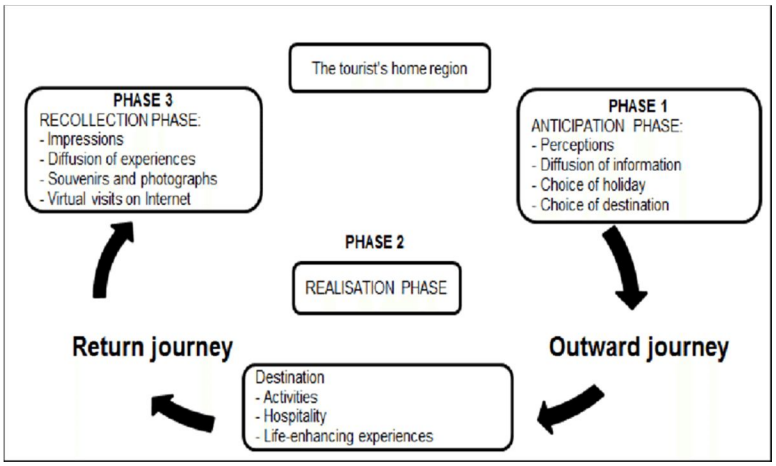
1) Machine Learning in Pre Trip – Machine Learning in PreTrip id very useful for various tasks. These Tasks can be as follows:
a) Tourists analysing the availability of various entry passes for tourism travel.
b) Getting to know about flight or other transport tickets and fares.
c) Booking hotel, confirming and Hotel Booking Cancelation,
d) Tourism Demand Forecasting.

2) Machine Learning During Trip – Machine Learning during trip is useful for various tasks. These tasks are as follows –
a) Recommender System.
b) Navigation
c) Maps for certain ways to reach destinations
d) Tracking distance travelled.

And so on…

3) Machine Learning After Trip – Machine Learning after trip is useful for various tasks. These tasks are as listed below –

a) Recommender System.
b) Accurate Navigation.
c) Feedbacks.
d) Reviews.
e) Impressions.
f) Diffusion of experiences.



A. Tourism Demand Forecasting

It is a complex system that makes use of different models like Neuro-fuzzy, neural network, certain Markov models and so on. It uses approach like deep learning, Box Jen Kins approach, etc. It uses complex algorithms like Hybrid Chaotic Genetic algorithms and certain processes like Sparse Gaussian Process. Hybrid System is also used.

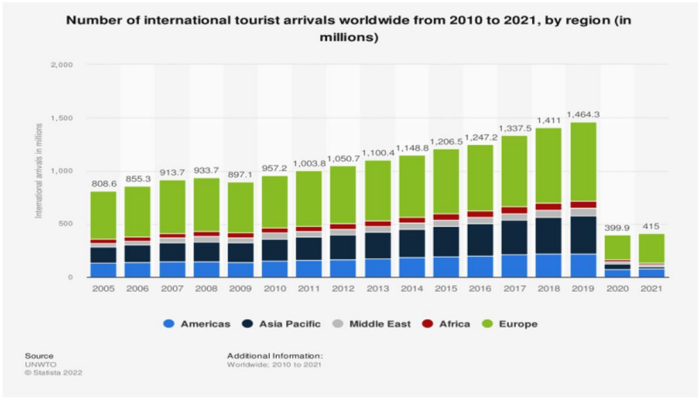


Figure 1: Bar Graph of international tourist travels

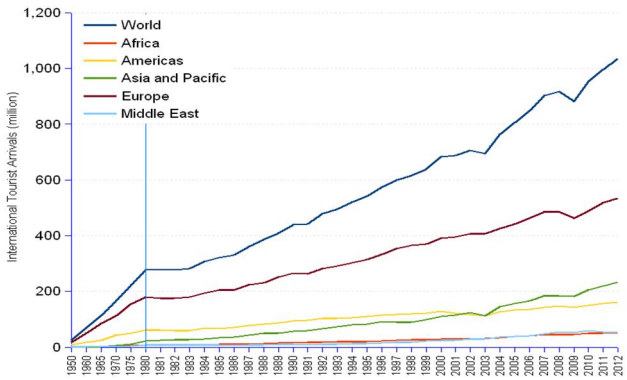


Figure 2: International Tourism (1950-2012)

B. Recommender System

A tourist attraction Recommender System is considered as a effective way for tourists to tourists attraction search. The Recommender system compares the data submitted by the tourist places or the data/reviews submitted by the tourists and makes use of certain algorithms and performs calculations and calculates a list of recommended attractions for the tourist. Machine Learning is the base of the Recommender System. Recommender System works on the principles and applications of Machine Learning.

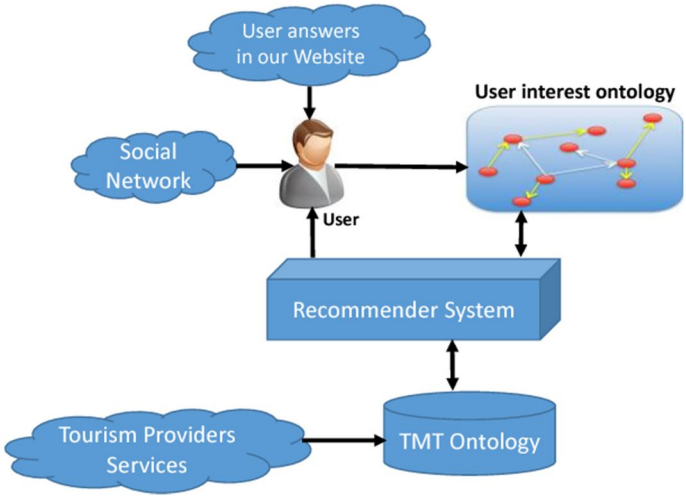
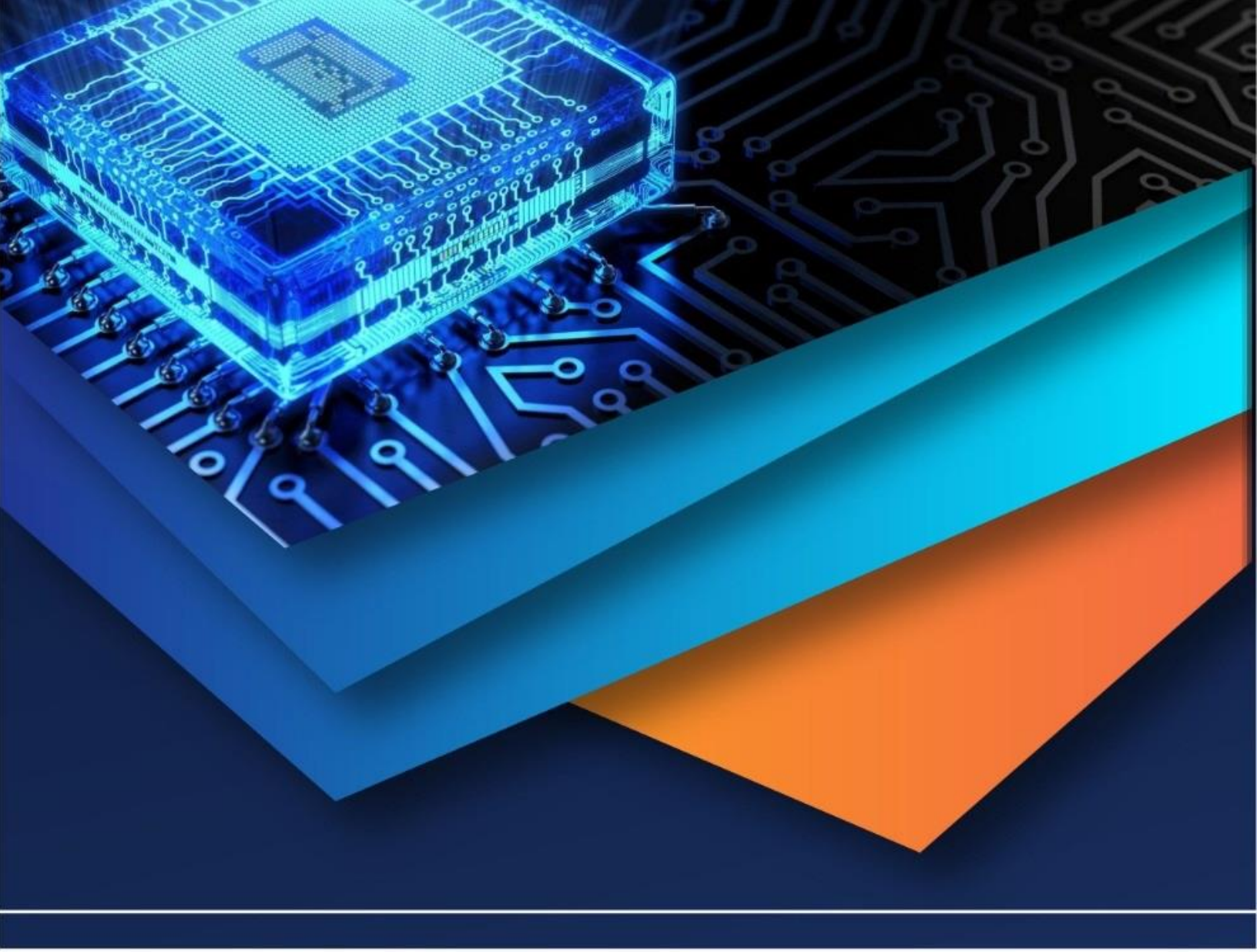


Figure 3: Representation of Recommender System

Machine Learning in tourism, mainly uses data including Statistics, Photos, Maps, and Texts, and is also used in trip stages Pre, During, and After trip and provides the necessary interpretations using Models, Approaches, Algorithms, Processes, Trends, Systems, and so on. According to the interpretations obtained, the necessary decisions can be used to improve tourism to help decision makers who work in the tourism industry. For instance, using Tourism Demand Forecasting pre trip to obtain information on the arrival of tourists in the future, using Tourism Recommendation Systems during trip to suggest more targeted trips, reduce traffic and air pollution, and get the best results in the best possible time offered to tourists, and using the Sentiment Analysis after trip to obtain tourists' views on tourist attractions, and information about Tourism Infrastructure such as: parking, shops, sanitation services, trail indicators, and so on is useful, which can help Tourism Managers and Planners to improve them for gaining the satisfaction of tourists, and therefore attracting more tourists in more competitive destinations in future**.**

REFERENCES

[1] Techtarget.com.
[2] "Deep Learning" by Ian Goodfellow, Yoshua Bengio and Aaron Courville.
[3] "Master of Science Thesis" "Development of a Tourism Recommender System" by Emili Roger Ciurana Simo.
[4] A Brief History of Machine Learning by DATAVERSITY.
[5] "Machine Learning with Applications" by Prof.Dr. Binshan Lin,PhD.
[6] Annals of Tourism Research.
[7] Phases of Tourism Experience by Marius Potgieter.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY