DEPARTMENT OF INFORMATION TECHNOLOGY 2021-22

VISION

Towards providing world class education in Information Technology with societal focus.

MISSION

M1: Empowering students with state of art knowledge and skills to meet global challenges.

M2: To carry out high quality research leading to the creation and commercialization of intellectual property.

M3 : To provide a comprehensive quality infrastructure committed to empower students to contribute technological and social development towards the progress of society.

TECHNICAL E-MAGAZINE

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Title :
Real time conversion of speech to sign language and Hand gesture recognition

Guide :
Dr. Sangeeta Jadhav

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Harsh Chauhan, Supriya Negi, Vishvajeet Singh, Sumit Kumar

ABSTRACT

The hearing-impaired community exclusively depends on sign language as a medium of communication. However, learning and understanding sign language may be difficult for some and none of this software is available for free or at a low cost. This paper presents a method of communication for hearing- impaired people by providing a speech (English Language) to sign language conversion and hand gesture recognition system. The system works in real-time by analysing the speech that wants to be conveyed and converts it into text using Azure cognitive API, which upon matching is then used to fetch the American sign language (ASL) GIF's from the hand-speak API. It lists a collection of GIF's which are later concatenated to form a video. It also recognises the hand signs and converts them into speech by making use of Dense-Net, Back Propagation technique and artificial neural networks.

Through this system, the aim is to fill the communication gap between the deaf and non-deaf communities.

Index Terms—Handspeak API, Azure cognitive, DenseNet, ANN

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Title:
Customer Segmentation using K-means Clustering

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Guide :
Dr. Sangeeta Jadhav

ABSTRACT

We live in a world where large and vast amount of data is collected daily. Analysing such data is an important need.
In the modern era of innovation, where there is a large competition to be better
then everyone, the business strategy needs to be according to the modern conditions.
The business done today runs on the basis of innovative ideas as there are large
number of potential customers who are confounded to what to buy and what not to
buy. The companies doing the business are also not able to diagnose the target
potential customers.
This is where the machine learning comes into picture, the various algorithms are
applied to identify the hidden patterns in the data for better decision making.
The concept of which customer segment to target is done using the customer
segmentation process using the clustering technique. We use the clustering
algorithm used is K-means algorithm which is the partitioning algorithm, to
segment the customers according to the similar characteristics. To classify the
customers various classifiers are used like (SVC, Logistic Regression, Decision
Tree, K-Nearest Neighbor, Random forest, Adaboost, Gradient Boosting Classifier.

Title :
Making algorithms using python and ML

Guide :
Dr. Rahul Desai

3 | PLV Sai Pawan Kr. , Nikhil Kumar, Ashish Singh, Nabhishek

ABSTRACT

Trading with algorithms has the benefit of scanning and executing on a couple of signs at a velocity that no human may want to do. Since trades may be analyzed and accomplished quicker, extra possibilities are to be had at higher prices. Another benefit to algorithmic buying and selling is accuracy. If a laptop is routinely executing a change, you get to keep away from the pitfalls of by chance installing the incorrect change related to human trades. With guide entries, it is more likely to shop for the incorrect foreign money pair, or for the incorrect amount, as compared to a laptop set of rules that has been double checked to ensure the suitable order is entered. One of the most important blessings of algo-buying and selling is the cappotential to get rid of human emotion from the markets, as trades are constrained inside a fixed of predefined criteria. The reason that is a bonus is due to the fact human beings buying and selling are at risk of feelings that result in irrational choices. The two feelings that result in terrible choices that algo-buyers arent at risk of are fear and greed. Another benefit to algo-buying and selling is the cappotential to backtest. It may be hard for buyers to understand what components are in their buying and selling gadget paintings and what does not paintings when you consider that they cannot run their gadget on beyond facts. With algo buying and selling, you could run the algorithms primarily based totally on beyond facts to see if it might have labored withinside the beyond. This cappotential presents a large benefit as it we could the consumer get rid of any flaws of a buying and selling gadget earlier than you run it live. Another benefit of automatic buying and selling is the reduced transaction costs. With algo-buying and selling, buyers dont need to spend a great deal time tracking the markets, as trades may be accomplished without continuous supervision.

Title :
VIRTUAL SENSEI : using PoseNet and CNN

Guide :
Dr. Rahul Desai

Karan Yadav, Dushyant, Prantik Mahapatra

ABSTRACT

Exercise is an indispensable activity in people's spare time. Proper and correct exercise can not only help people to get a healthy body, but also help to reduce pressure and relax their mood. However, the wrong way of exercising not only makes the exercise fall short of expectations, but also causes muscle damage. Therefore, we have developed a set of human exercise posture analysis and guidance software to analyze the user's exercise posture through the video captured by the camera. This software chooses PoseNet as the basic pose estimation network, and two methods are proposed to improve the model effect. In addition, referring to the professional movement specifications, we define two correct forms of common movements: squats and push-ups. The software firstly conducts the human body posture detection, Obtains the coordinate information of key points, then carries on the exercise posture analysis, and gives relevant suggestions according to the definition of the correct exercise form. The proposed method uses PoseNet in each frame to extract multiple joints and links of a human body. Then, it analyzes key motion features linked to counting the push-ups.

Robin Acharya, Saurabh Marathe, Anuj Bugalia

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Title :
The world is complex, Smart-Vision makes it simple.

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Guide :
Prof.
D.G.Auradkar

ABSTRACT

We capture VGA resolution pictures. real word captured images to the machine learning model, which further processes the image and using the trained convolutional neural network giving out the precise features from the image. Features extracted then are captioned through LSTM and with the help of Recurrent nets the captioned text is converted to a meaningful sentence. Further the data retrieved is converted to audio and traArunnsmitted to the subject’s ear.

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Title :
Summarizer : Transforming after notes of your online meets.

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Guide :
Dr. Ashwini Sapkal

Akash Bhati, Arun, Saurabh Rai, Shubham Anand

ABSTRACT

Creating a summary of a given online meet, online lecture or any video having giant content could be a terribly abstract method that everybody participates in. Automating such a method will facilitate dissecting through heaps of information and facilitate humans higher use their time to form crucial selections. Not only making the minutes of the meeting but also generating questions and answers from it and that so automatically will help us save our time. With the huge volume of data and media out there, one will be economical by reducing the fluff around the most crucial data. We’ve already started seeing text summaries across the net thatsquare measure mechanically generated. Automatic video summarization is the method of reducing a video or online meet into a little text outline and generating question answers from it with a computer program to make an outline that retains the foremost details of the initial video.

Because the drawback of data overload has grown up, and as the amount of knowledge has augmented, therefore the interest in the auto[1]summarization. It’s tough for individuals to manually summarize hours of videos having dunes of data. As everything went into online mode and changed a lot, so does our mental health. People are having stress, depression,and other mental health issues. These textual summaries of online meets can be utilised to comment on the mental state of the speakers in the meet and overall vibe of the meet using emotional analysis which can help the companies/ colleges to create a better environment for employees/students toboost the productivity and enhance the work environment accordingly. Hence, it will not only summarize the meet for you and generate question answers but also summarize the overall emotion in that online meet for enhanced productivity.

Title :
Multilevel Cloud detection on satellite images using deep learning

Guide :
Dr. Ashwini Sapkal

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Yasbir Singh, Arman, Karamveer

ABSTRACT

In excessive-resolution image statistics, multilevel cloud detection is a key challenge for remote sensing data processing. usually, it is tough to achieve high accuracy for multilevel cloud detection when the use of satellite imagery which handiest carries seen and close to-infrared spectral bands. So, multilevel cloud detection for excessive resolution far off sensing imagery is difficult. on this paper, a new multilevel cloud detection method is proposed based on the multiple convolutional neural networks for excessive decision far flung sensing imagery. on the way to avoid enter the whole image into the network for cloud detection, the adaptive easy linear iterative clustering (A-SCLI) algorithm became implemented to the segmentation of the satellite photo to acquire true-quality super pixels.

After that, a of convolutional neural (MCNNs) architecture is designedmultiscale features from every super pixel, and the super pixels are marked as thin cloud, thick cloud,new a couple networks to extract cloud shadow, and The consequences advocate thatproposed technique can locate multilevel and attain a high accuracy for high decision far flung sensing imagery.

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Title :
Content Based Video Organisation and Retrieval System

”

Guide :
Prof Vaishali Ingale

Ayush Adhikari, Shubham Kumar, Aman, Aditya Shinde

ABSTRACT

Manual organizing and analysis of video is strenuous, error-prone, and very time-consuming. Processing multiple videos is arduous and enervating. To make this process effortless we have developed a user-friendly Web Application that helps users to search, navigate, organize and play their gallery of videos using deep learning models based on content i.e., semantic details rather than just file names. Users can enter queries in form of the keyword (s) and the most relevant videos for that query will be displayed by matching the similarity of the vector representation of the search query and the vector representation of the extracted feature. These videos can be navigated using Flexbox or Grid User Interface. Users can also create collections of their favourite videos and perform CRUD operations on individual video as well as on the collection.

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Title :
Uniqueness or individuality of an individual is his face

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Guide :
Prof Vaishali Ingale

9

Jatin, Grandhi Abhisar, Gaurav Singh, Prashant Sharma

ABSTRACT

In this project, face of an individual is used for the purpose of attendance making automatically. Attendance of the student is very important for every college, universities and school.

Conventional methodology for taking attendance is by calling the name or roll number of the student and the attendance is recorded.

Time consumption for this purpose is an important point of concern. Assume that the duration for one subject is around 60 minutes or 1 hour & to record attendance takes 5 to 10 minutes. For every tutor this is consumption of time. To stay away from these losses, an automatic process is used in this project which is based on image processing.

In this project face detection and face recognition is used. Face detection is used to locate the position of face region and face recognition is used for marking the understudy's attendance. The database of all the students in the class is stored and when the face of the individual student matches with one of the faces stored in the database then the attendance is recorded.

Title:
Alzheimer: Early detection using deep learning and smartphone application to aid patients

Guide :
Prof Geeta Patil

10 | Soudip Das, Riya, Pushpa, Sparsh Gupta

ABSTRACT

Dementia is a general term for a decline in mental ability severe enough to interfere with daily life. Alzheimer's is the most common form of dementia. According to the Dementia India Report 2010, there were around 3.7 million Indians with dementia in 2010with the number projected to rise to 7.6 million by 2030. Currently there is no treatment available to cure Alzheimer's and this brings us to the importance of detecting the disease at an early stage.The objective of the project is to detect the disease in its early stages using Deep learning algorithms and to build a smartphone application, consisting of interactive GUI and memory enhancing games, for patients (at an early to medium stage) .The conventional approaches are costly, often error prone and the conventional machine learning algorithms require manual feature extraction but Deep Learning represents the true bleeding edge of Machine Intelligence.

Due to it's automated sense, we have taken up on comparing three Deep learning techniques for the detection of Alzheimer I.e., Deep CNN using 3-D MRI data, Transfer Learning using VGG-19 and InceptionV3 models and using the most efficient one for detection in the project.This project will be giving a deep learning based method to detect Alzheimer's disease and dementia, that is fast, reliable and most accurate. However, similar approach can be applied to detect other diseases too. This project can also serve as an inspiration to other kind of image analysis using deep learning.

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Title :
Network Intrusion Detection System

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Guide :
Prof Geeta Patil

11

Rohit Sangwan, Saurabh Singh Chauhan, Sachin Dogra, Saurav Chauhan

ABSTRACT

With the development of wireless network strategies, the number of cyber-attacks has been increasing dramatically. As the number of IoT devices and other smart devices connected to the network continues to diminish uncontrollably, so do the security issues associated with it. Standard entry-level technology is the most common research tool for many years, but it may not have the best performance detection in real time. It has been a prevalent area of study for many years but there is still no solution with proper accuracy yet. Therefore, it is urgent to design a recovery method to detect attacks in a timely manner. Our idea is to use a multi-layer network that contains many neurons, organized into interconnected levels. The neural net package uses the Input layer, the output layer that will provide the sections and among them is a number of hidden layers.

The results obtained show greater accuracy and use took less time to complete.

Title :
COVID-CARE: Covid-19 Detection using Convolutional Fuzzy Neural Network in Chest X-Ray Images

Guide :
Prof Gajanan Walunjkar

Abhinandan Singh, Abhishek Kulhari, Ankit Kumar

ABSTRACT

The detection of an acute respiratory syndrome coronavirus 2(SARS CoV-2) which is responsible For Coronavirus disease 2019(COVID-19) becomes very important for saving human life. By using Chest X-ray images, it can become lifesaving importance for both patients and doctors. In many Countries that are developing, and underdeveloped governments are unable to purchase Laboratory kits for testing, detection of COVID-19 using chest X-Ray images becomes even more Vital. Detecting possible COVID-19 infections with the help of chest X-ray images may help Quarantine high-risk patients while test results are awaited. X-Ray machines are available in all Healthcare systems because the most modern X-ray system is already digitized, and there is no Transportation time required sample either. We propose the use of chest X-rays to prioritize the Selection of patients for further RT-PCR testing. This method will be extremely useful when the System is struggling to even decide whether to keep the patient in the ward along with other Patients or we should isolate them in COVID-19 areas. Publicly available X-ray datasets of healthy, Pneumonia, and confirmed COVID-19 patients were used in the project. In this Journal, we aim To present the use of deep learning for high accuracy detection of COVID-19 using Chest X-Ray ,Images. The overall accuracy obtained with the proposed approach varies from 94% to 98% for CNN and its equally constant for FCNN I.e,98%, respectively.

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Title :
Prediction Of Market Trends

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Guide :
Prof Gajanan Walunjkar

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Mayank kumar, Payal, R Sankalp shukla, Shikha

ABSTRACT

Forecasting about Indian market has always been interesting and topic of discussion among analyst and researchers. With the arrival of machine learning and artificial intelligence the race is now becoming the competition with best algorithms to be used and give investors more profit. In past years prediction was only based on experience and daily headlines of business newspapers but now it depends on various international, national and political economic factors and the sentiments and reaction of people over the issues. With the growing power of social media, the game in market over this also changed now with the help of sentiment analysis over social media we can determine the mood of investors over the news. In the present scenarios you can divide two categories for the prediction strategies one is the time series analysis of stocks and the second is artificial intelligence property over the market.

AI property contains multi-layer perception, SVM, naive Bayes, back propagation, CNN, LSTM, RNN etc. during this we have tendency to came with plan of combination of each. Within the paper we have conjointly covers the assorted challenges that are encountered while building prediction models. This whole module focuses on use of statistical analysis and conjointly development of the sentimental analysis and to get better results. The LSTM has the advantage of analyzing relationship between time series knowledge through memory functions. The performance of the system is improved by combine efforts of time-series and sentiments with the LSTM prediction model.

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Title :
DigiHealth (Digital Healthcare Database)

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Guide :
Prof Yuvraj Gholap

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Aman Gupta, Alam Kathat, Atul Kumar Tiwari, Sanju Baloria

ABSTRACT

The purpose of the project is to read the handwritten documents and reports by doctors using OCR and store the data in database for further use. Our aim is to bring the large amount of medical data in paper format, to electronic format. Also, this will help users in maintaining their medical prescriptions. Once the data is stored in database, we can use it to detect some patterns. The doctors too can use this to see past medical history of patients.

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Title :
Real Time Video Captioning using BI-Model Transformer

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Guide :
Prof Sandeep samleti

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Ashish Mishra, Alok Jhajhria, Shivam Kumar Rai, Gaurav Malik

ABSTRACT

Forecasting about Indian market has always been interesting and topic of discussion among analyst and researchers. With the arrival of machine learning and artificial intelligence the race is now becoming the competition with best algorithms to be used and give investors more profit. In past years prediction was only based on experience and daily headlines of business newspapers but now it depends on various international, national and political economic factors and the sentiments and reaction of people over the issues. With the growing power of social media, the game in market over this also changed now with the help of sentiment analysis over social media we can determine the mood of investors over the news. In the present scenarios you can divide two categories for the prediction strategies one is the time series analysis of stocks and the second is artificial intelligence property over the market.

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Title :
Algorithmic Trading using Sentiment Analysis

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Guide :
Prof Rupali Bagate

Abhilash Trivedi, Anand Pandey, Deepshikha Tripathi,

ABSTRACT

Algorithmic trading is the use of programs and computers to generate and execute (large) orders in markets with electronic access. Orders come from institutional investors, funds and trading desks of big banks and brokers. These statistical, mathematical, or technical models analyse every quote and trade in the stock market, identify liquidity opportunities, and turn the information into intelligent trading decisions. In recent years as the computation power and availability of the data has increased exponentially, there has been significant increase in study of human sentiment in various fields. Human sentiment elects human behaviour adroitly and thus market is also not acquitted from its elect. This whole module focuses on use of statistical analysis and conjointly development of the sentimental analysis and to get better results. Sentiment analysis (also known as opinion mining or emotion AI) refers to the use of natural language processing, text analysis, computational linguistics, and bio metrics to systematically identify, extract, quantify, and study elective states and subjective information. Our Aim is to combine traditional algorithmic trading with sentiment analysis for better stock market prediction and create better buy/sell signal with greater accuracy.

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Title :
Accent Correction And Region Prediction.

”

Guide :
Prof Rupali Bagate

17

Narendra Yadav, Naincy Rathore, Gaurav Singh Dhek, Aman Singh

ABSTRACT

Background: In recent years, speech recognition technology has become a dominant part of our everyday lives, and as most of the future technology being developed can easily be integrated with the help of speech recognition. To make a digital future, technological advancement of everyone is necessary and to make this technological advancement not so technical, speech recognition serves its role. Although speech recognition has made significant advances at certain languages, but what has been achieved is a drop and what is left is an ocean. This technology has failed miserably in recognizing different accents of a single language or a voice disorder and this has led to various questions on the authenticity of progress of the process.This paper documents the drawbacks of this technology and the areas where its immediate progress is possible.

It talks about limitations of various existing and popular and under radar ASR technologies with insights of their flaws which need to be considered immediately to avoid various social dilemmas and insecurities.

Ajay Bohra, Kunal Khanra, Roshan Rai, Deepak Tiwari

Title :
Interactive Shopping Experience Using Augmented Reality

Guide :
Prof Aparna Joshi

ABSTRACT

With advancements in new technologies such as Augmented Reality and Virtual Reality, it has provided us the new world to explore and make most applications out of it. These technologies are still developing, and many researchers are trying to develop new applications every day. Encouraged by the recent advances in Augmented reality, we propose a real-world application of Augmented Reality using Mobile Application which provides an interactive in-store shopping experience. The Mobile Application will let user see all the essential product details in his/her real-world environment in a very interactive and effective way using graphs, pie chart, 3D models. Our idea is to utilize already present efficient convolution neural network such as AlexNet for recognizing the product from the image taken and then getting all the essential product details that is stored in Database, and then project out these details out in user's real-world environment.

Using the mobile application, the user can scan the product for which user wants the information by allowing camera access. Once camera clicks the picture of the product, the image will be enhanced and then enhanced image will be sent to AlexNet Convolution Network, which is already trained on the many product images. AlexNet Convolution Neural Network will recognize what the product is, and after knowing the product we can extract more information about product from database such as ingredients, nutritional, price, expiry data, etc., and lastly this information will be directed into user's environment using AR SDKs.

Processes related to project identification, allotment, continuous monitoring, and evaluation

SEMESTER 1

Student project groups will be formed.

1

Student has to submit project ideas Efforts are taken to get maximum sponsorship project.

2

Internal guide is allotted to the Project group.

3

Review committee of senior faculty is formed to assess progress of project work .

4

Review 1:
- Shortlist projects and to check feasibility.
- Finalize objectives and scope of project.
- To discuss list of required hardware, software or other equipment for executing the project, test environment tools.

5

Review 2 :
For finalization of SRS - High level design ,planning with CPM/PERT chart.

6

Student submits preliminary project report . Appears for university exam (ppt presentation) evaluated by external/internal examiner .

SEMESTER 2

Review 3 :
For checking the implementation status

1

Review 4 :
Final Project Demonstartion and result analysis.

2

- Student prepare final project report.
- Appear for university exam (project demo) evaluated by external/internal examiner

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THANKS.

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Mr Yuvraj Gholap	Assistant Professor
Mr Sandeep Samleti	Assistant Professor
Mrs Rupali Bagate	Assistant Professor
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Mrs Dipika Birari	Assistant Professor
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