MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
NH-12 (Old NH-34), Simhat, Haringhata, Nadia -741249

Department of Information Technology

List of Projects Completed By M.Tech Students

Session: 2018-2019

Classify the movement of human being into normal and suspicious

Guided By: Ms. Rupali Patua

Abstract: The utilization of CCTV camera had been increased from the past few years .Earlier,it was only been used in airports,banks,big malls etc but nowadays each and everywhere the camera has been setup whether it is small shops,outside buildings or houses and also on roads.The camera have been useful in helping in many of crime scenes and also activities happening in places.With the help of CCTV camera and other devices,the security of the public places is increased but somehow the threat of something suspicious happening is always been there.In the traditional method of the surveillance system, there is always been an individual available in front of the machine to keep an eye on the activities happening in the places.The something suspicious happening in the place is always been identified by the person sitting in front of the system.It can happen that sometimes the person suspicious activity is not been identified by the individual because of the miss of activity from eyesight.There are multiple camera has been setup in public places like airports,shopping malls etc. so that a large area can be covered.Now to detect suspicious activity from the videos of all the camera is both intricate and at the same time also time consuming.In recent years,there is tremendous growth in machine learning.With the help of machine learning, the surveillance system can be made better and modernized.The machine learning can play a vital role in taking the security to a higher level and also taking a step towards making the system automatic.In this paper,using deep learning approach had been developed to identify whether the individual is walking normally or there is something suspicious about the individual by seeing the movement of the individual through the webcam.

Member:
Tripti Muchhal (Roll No: 30011417001)

Security of medical images

Guided By: Mr. Mihir Sing

Abstract: The development in networking technologies and telecommunication has moved forward tremendously. In medical diagnosis, many processes have been proposed by numerous researchers for securing patients records and medical images which are sent from one location to another. So, to protect the privacy of patients and to maintain the integrity of patients' data, security in the medical images is very much important. This is because if any changes occur in medical data and/or images at the time of transmitting then the result may be catastrophic in the treatment of patients. In this thesis, I have proposed a model which can be used to transmit the medical images securely. This will also ensure confidentiality and integrity of the medical images. For secure transmission, I have used Huffman encryption method because this technique helps to both compress and encrypt the watermark image without any loss of information bits. I have used Discrete Wavelet Transform (DWT), Discrete Cosine Transform (DCT) on each 8x8 block and Singular Value Decomposition (SVD) to embed watermark medical image into the host

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medical images to maintain confidentiality and integrity.

Member:
Swarnali Sadhukhan (Roll No: 30011417002)

Location-aware Music Crowdsensing in Internet of Things

Guided By: Prof.(Dr.) Debashis De

Abstract: *Technology has developed a lot over the last decades almost every field. The integration of sensing and embedded everyday computing devices at the edge of the Internet will result in the evolution of an embedded Internet or the Internet of Things. As supplementary technologies like Cloud Computing, Big Data, Internet of Things are increasing rapidly, these technologies produce gigantic amount of data. With this, the bottom layer devices like IoT devices need quick responses. The crowdsensing has changes its feature and populated as Mobile Crowdsensing where IoT and smart devices are participated to sense the data. The location aware systems like location aware music recommendation, geo tagging in a particular data will developing. In the field of music this is not exceptional. We proposed a system based on location aware crowdsensing of music data by the help of embedded systems and tweeting. Then we present an architecture for location-based twitting of musical sources, deploy a location aware musical data sensing system through IoT- aware participatory embedded devices, provide services in the IoT schema on embedded device allocation for data sensing and discuss analytical case-studies on the opportunistic crowdsensing architecture with deliberate outcomes. But to handle this produced heterogeneous data we need proper architecture. Osmotic computing become a hot topic in the research field. It is the proper mechanism which can solve the problem of handling this huge produced data. In our proposed system we have proposed to develop a music recommendation system in Fog environment using Osmotic Computing. We placed our computing server and song database device in the Fog layer. In our scenario, when a user opens provided music playing interface some microservices are generated and send to corresponding server then the server with the help of other servers gather a music playlist depending on the user's given and predicted parameters. Then the music playlist served to the user as recommended music playlist.*

Member:
Suman Kalyan Maiti (Roll No: 30011417004)

Energy Efficient scheduling in Cloud Computing

Guided By: Mr. Santanu Chatterjee

Abstract:

Member:
Saswata Ghose (Roll No: 30011417005)

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Efficient energy management of wireless sensor network for the internet of things

Guided By: Dr. Suparna Biswas

Abstract: *Internet of things (IoT) is a smart technology which gives assurance of connecting anything anywhere and anytime in today's world. As per technology is concerned, wireless sensor network is an eminent contributor for IoT and composed of a large number of tiny sensor nodes of different type for using in variety of environments like temperature, humidity, pressure etc. to acquire and gather data for seamless transmission. The sensor nodes have limited battery power, processing power and small memory. As the sensor nodes are constrained with energy, the energy conservation of the nodes has become a prime concern to increase the network life time. The sensor nodes work in two modes active and sleep. In active mode when nodes acquire and transfer data to the base station or sink node, it consumes more energy. In sleep mode the minimum energy is required. We have tried to minimize the active mode of the nodes to reduce the energy consumption. There are many existing protocols like LEACH, ELEACH, I-LEACH which have been used to minimize the energy consumption of the sensor nodes and overall sensor network. Here we have proposed an algorithm which is based on basic LEACH protocol considering the maximum residual energy of a node of that moment, threshold energy of the each node, shortest distance from the base station or sink node, minimum distance from each other among the neighbor nodes and the nodes which have been used most and least in a particular duration and node closeness centrality. The main objective of WSN is to increase the network lifetime by holding the energy of sensor nodes for the longer period. The closeness centrality concept has been introduced for cluster head selection to achieve this. It is based on the distance measurement criteria, as energy consumption is directly proportion to square of measured distance. In this way the closeness centrality approach will select the cluster head at optimal location to reduce the energy consumption. All the nodes are assumed here are homogeneous and static in nature. TDMA has been proposed for changing the cluster head after certain interval so that all nodes will get the equal chance to become cluster head and no node will die out by over drainage of energy (battery power). We have implemented the proposed protocol using MATLAB which significantly improves*
network lifetime and throughput of the network resulting in an energy efficient protocol for the wireless sensor network suitable for IoT application. We have observed the PDR with different number of nodes from 100, 150, 200, 250. Comparing the Packet delivery ratio to the Cluster head for LEACH is 98.2146% whereas the same for proposed method is 98.4835%. And Comparing the Packet delivery ratio to the sink node from all Cluster head for LEACH is 83.7355% and for proposed method is 85.2887%.

Member:
Sarbani Barari (Roll No: 30011417006)

Reversible data hiding for 3D images

Guided By: Mr. Mihir Sing

Abstract: *There is a perpetual requirement for secure data communication in order to transmit a message over a shaky network prone to various attacks. Steganography, which provides a means of cover writing is effective in hiding sensitive data by embedding them in 3D images which can be reversibly extracted. Steganography schemes also based on Discrete Wavelet Transformation (DWT), Discrete Cosine Transformation (DCT) and Singular Value Decomposition (SVD) are applicable on spatial domain exclusively. Public key cryptography in Reversible Data Hiding (RDH) imparts double layer security to*

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sensitive images. An overview of various such reversible data hiding techniques are discussed in this paper which throws light on the recent research works in this domain. The application areas of RDH are put forward and concluded by summarizing the studies on different proposed methods. The paper ends with delivering a direction to the future work which gives scope of improvement to existing methodologies. In RDH the original host image is losslessly restored post extraction. However, there is much strictness observed with respect to degradation in areas of law forensic as well as in medical/military imagery.

Member:
Sarah Fatema (Roll No: 30011417007)

Classification of the skin disease using machine learning approach

Guided By: Dr. Suparna Biswas

Abstract: *Skin problem is growing fast all over the country. It is one of the most common type of disease were some can be painful or not, and some can be too dangerous to cost a human life. But at the same time if treated at the same time can reduce the risk of life involves in it. Everyone should pay attention towards this serious problem which is spreading fast due to numerous reasons like pollution, global warming, ultra-violet rays, etc. Many people are too shy to even share these problems to anyone, which is also contributing the high rate of skin disease in India. To avoid delay in treatment, we have developed a framework which will classify the disease using image dataset. The model uses the deep learning approach to get trained for classification. It works on Convolutional Neural Network (CNN) with fine-tuned transfer learning using GoogleNet. Using pretrained network the framework is trained to classify skin disease. The experiment was carried out on matlab 2018. The implementation result of training obtains accuracy of 95.01% with dataset of 4000 images into 8 different classes of skin diseases.*

Member:
Riddhi Kumari Bhadoria (Roll No: 30011417007)

Predicting risk level of cancer patients using gene expression analysis

Guided By: Dr. Sriyankar Acharyya

Abstract: *Survival analysis provides special techniques that are required to compare the risks for death associated with different treatments or groups, where the risk changes over time. The objectives of survival analysis include the analysis of patterns of event times, the comparison of distributions of survival times in different groups of individuals and examining whether and by how much some factors affect the risk of an event of interest. In this work responsible genes are selected for a particular cancer and a particular patient by Cox. After that the risk levels of those patients have been calculated. On the basis of risk level, customized medicines are predicted for those lung cancer patients and then genetic based clinical diagnosis for those patients individually has been suggested. There are some future scopes. We will apply new horizon of another method rather than Cox ,which will may give the better results applying on different data sets.*

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Member:
Rajasri Chatterjee (Roll No: 30011417009)

A state-of-the-art paradigm on eHealthcare-inspired Headache Information System

Guided By: Mr. Saikat Basu

Abstract: *Internet brings two-way communication to facilitate the people connected with each other at a very low cost. Headache is the most common problem in our daily life. But it affects very bad conditions in our day to day life. It hampers our ability to work and boost up anxiety, tiredness and many other activities in life. The various treatment of headache is proposed. Using the internet, a patient can get suggestion and treatment via the internet. The different treatments also developed like biofeedback, EMG biofeedback etc. But to give proper treatment, it needs proper symptoms and causes of the headache from the suffering people. Using the advantage of the internet, many web-based software and system were designed to collect the causes of the headache to give his/her proper suggestion and treatment through online, known as an e- HealthCare system. Different surveys are considered to illustrate the different causes and treatments of headaches in different countries. From all this survey different causes of a headache are discovered. Depending on the geographic location the causes and symptoms were changed for a headache. In this context, finding out different causes, symptoms, relief methods of headache in a specific location. Different headache related data has been gathered from different students and analyses them to find out which headache occurs most of the people and most of the time. Also, it has been analyzed which symptoms, causes, positions etc. occurs most and give an overall idea about which type of headache occurs most of the students.*

Member:
Anindita Panda (Roll No: 30011417011)

Rise disease classification

Guided By: Dr. Santanu Phadikar

Abstract: *The fast and appropriate analysis and recognition of a plant disease can control the growth of diseases on various crops for improving the quality and productivity of crops. The automatic system can perform disease recognition at minimum cost and error without farm specialist's interpretation. The various research works use the image processing and machine learning techniques for automated detection of various crop diseases. It is very difficult to identify appropriate properties for distinguishing different kinds of crop diseases by using those methods. In this project work, we have developed a system for classifying rice leaf diseases using a deep learning approach. Among the several kinds of rice leaf diseases we have consider only three kinds of diseases such as bacterial blight, blast and brown mark on rice leaves for automatic identification and classification of healthy and diseased rice leaves by constructing a convolutional neural networks (CNN) model. The first phase of the developed system distinguished healthy and diseased leaf by using 400 images of healthy rice leaves and 400 images of diseased rice leaves from a set of 1200 diseased leaves containing 400 images of each of three diseased classes. Secondly, the three kinds of diseases have been classified and identified by using the dataset of 1200 images containing 400 images of every kind of diseased rice leaves. The CNN model automatically learned required*

properties from raw images to differentiate the healthy and diseased rice leaves with 94.58% accuracy and then distinguished different kinds of diseased rice leaves with 82.22% accuracy. Thus, the designed CNN model can accomplish the good identification result.

Member:

Shreyasi Bhattacharya (Roll No: 30011417012)