BYTE QUEST

Vasavi College of Engineering

Department of Computer Science and Engineering

Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

☐ Good, bad or indifferent if you are not investing in new technology, you are going to be left behind.

-Philip Green

☐ Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

-Stewart Brand

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PROCESSING OF FACE PROPERTIES

This research aims to design and implement a home security system with human detection capability. Traditional home security systems, i.e., Closed-Circuit Television (CCTV) can only capture and record videos without the ability of giving warning feedback if there is any suspicious object. Therefore, an additional object detection and warning method is required. The proposed design is implemented using Raspberry Pi 3 and Arduino, that is connected by USB cable. The PIR sensor is installed on Arduino and webcam is mounted on Raspberry Pi 3. The Raspberry Pi 3 is used to process inputs from sensors and process images for human detection. PIR sensor detects the movement around the sensor to activate the webcam to capture a picture.

One key advantage of a facial recognition system that it is able to person mass identification as it does not require the cooperation of the test subject to work.

AKHIL RATHOD (CSE-B 2/4)

ML CARDIO RISK CHECK

A team from MIT's <u>Computer Science and Artificial Intelligence Laboratory</u> (CSAIL) came up with a new system for better predicting health outcomes: a machine learning model that can estimate, from the electrical activity of their heart, a patient's risk of cardiovascular death. The system, called "Risk Cardio," focuses on patients who have survived an acute coronary syndrome (ACS), which refers to a range of conditions where there's a reduction or blockage of blood to the heart. Using just the first 15 minutes of a patient's raw electrocardiogram (ECG) signal, the tool produces a score that places patients into different risk categories.

the human body surface. The approach is based on the notion that greater variability between heartbeats reflects greater risk.
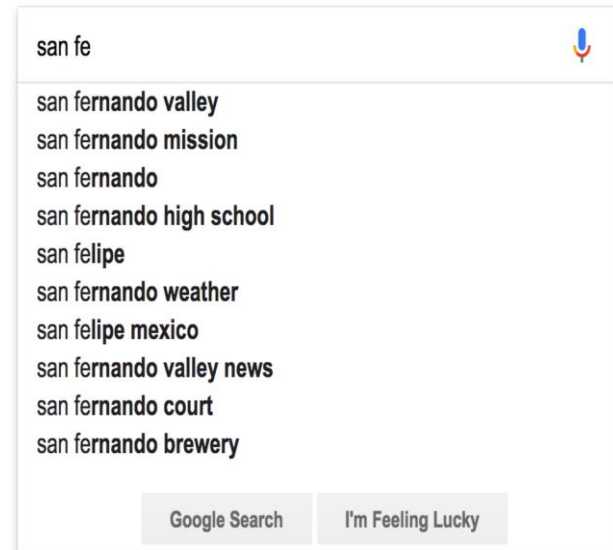
Scientists trained the machine learning system using historical data for patient outcomes. If a patient survived, their heartbeats were deemed relatively normal; if a patient died, their heart activity was considered risky. The ultimate risk score comes by averaging the prediction from each set of consecutive heartbeats

K.ANISHA (CSE B 2/4)

PROCESSING LANGUAGE NATURALLY

Natural Language Processing (NLP) is a sub domain of machine learning which basically enables the computer to interpret human language input and respond to it. Natural language, in opposition to "artificial language", such as a computer programming language, is the language used by general public in their daily communication. The idea of machine translation exists since 17th century, during this time artificial intelligence was not quite popular. Programmers had hardcoded a long list of commands for processing the input. But the human language is ambiguous and not structured due to which machine translation failed to achieve the desired results. After the machine learning algorithms getting into limelight natural language processing took a new shape. NLP mainly uses two methods for processing the natural language input (audio or text). We use computer algorithms which in turn use machine learning algorithms behind the scene to make a grammatically meaningful sentence from the given input. Some of the techniques used in syntax analysis are lemmatization (searching for base verb), sentence breaking (breaking down a large text into chunks), stemming (cutting down the inflected words). Semantics is referring to meaning of given audio input. Now, this is a tricky part where the meaning of the input could be ambiguous as it depends on the voice modulation, slang, dialect, of the input speech. We can use unsupervised learning to process the data but, the results

are obscure and inaccurate. We can increase the accuracy by training the models with more data which is actually available on the world wide web. Natural language processing is used in many applications like voice assistants (google voice assistant, Facebook – Siri, Microsoft -Cortana, amazon - Alexa), search engine search, search suggestions, spell checking, language translation, chatbots for customer support, sentiment analysis. NLP is challenged by the fact that language used by humans is changing continually doesn't understand the sarcastic part of the given input. NLP still needs perfection. This technology would be a promising technology which can help in automation.

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