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Priorization of Cyber Assets Using Deep Learning in Cyber Physical System with Morse code

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ABSTRACT: Data science is a multidisciplinary blend of data inference, algorithm development and technology in order to solve analytically complex problems .Data science is used by almost all the industries like educational institutions, finance, healthcare, business to handle large volume of data.

The practical applications range from predicting stock movement to predicting cancer; used in image processing to identity recognition, audio processing for speech to text prediction. Since most of the people in the world are facing problems in the field of authentication and security. We are able to provide a real time eye tracing for password authentication for people who authenticate themselves using Morse code.

KEYWORDS: NLP techniques to predict the facial expression of the user's text, Haar cascade classifier algorithm is used to detect the faces in the image, Smoothing for face detection, face feature extraction and face recognition.

I. INTRODUCTION

Throughout history technology has been the drive of change. From movable type, to television, to the online , technology has been embraced and incorporated into our daily lives.

Within the constructs of civilized society, the vast rewards of technological innovations have far outweighed negatives. Data science is that the study of where information comes from, what it represents and the way it are often became a valuable resource within the creation of business. Mining large amounts of structured and unstructured data to identify patterns can help an organization rein in costs, increase efficiencies, recognize new market opportunities and increase the organization's competitive advantage.Machine learning may be a field of computing that always uses statistical techniques to offer computers the power to "learn" (i.e.,progressively improve performance on a selected task) with data, without being explicitly programmed.Machine learning is employed during a variety of computing tasks where designing and programming explicit algorithms with good performance is difficult or infeasible. Within the world of data analytics, machine learning could also be a way used to devise complex models and algorithms that lend themselves to prediction.

II. RELATED WORK

Real time Eye Tracking for Password Authentication [1] proposes a authentication process where a true time application for gaze• based PIN entry, eye detection and tracking for PIN identification employing a smart camera. This process leaves no traces of physical footprints behind, therefore offering one among the foremost secure thanks to authenticate the password. Quantitative Analysis of Tennis Experts Eye Movement Skill [2] proposes measurement the attention movements of an actual expert athlete and a beginner athlete . The measured eye movements of the players are compared and analyzed. the attention movements are recorded using an eye•tracker. Main observation made during this paper is that beginners have a bent to follow the ball unconsciously for a flash. Smart•Eye Tracking System [3] proposes a sensible Eye tracking system which is meant for people with disabilities and elder people. The concept of this research is to use eye movement to regulate appliances, wheelchair and communicate with caretaker. this technique comprises four components, imaging processing module, wheelchair•controlled module, appliances•controlled module and SMS manager module. Besides the attention movement, the attention blink is applied during this system for entering a command as once you press, Enter button on keyboard. The wheel chair controlled module may be a cradle with two servos which will be moved to 2



dimensions and also adaptable to other wheelchair joysticks. this technique also remotely controls some appliances and communicate with caretaker via send message to smartphone. Extension of Desktop Control To Robot Control By Eye Blinks using SVM [4] proposes to issues related issues associated with Accessibility, which should eliminate, or a minimum of reduce, the space between disabled people and technology. For severely- impaired persons, there are still many challenges that be overcome. We present eye tracking as a valuable support for disability in the accomplishment of hands- freetasks. Eye Movement Related EEG Potential Pattern Recognition For Real•Time BMI

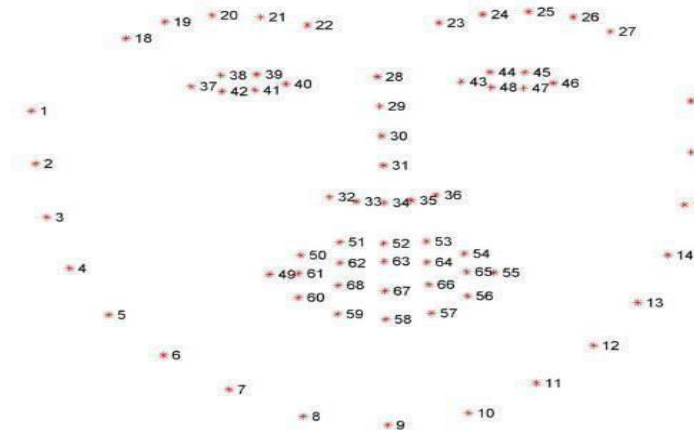
[5] proposes study which aims at rapid BMI (Brain Machine Interface) pattern recognition for the eye•ball movement, which is taken into account to be removed factor from EEG (Electroencephalogram) as artefact. We investigated the repeatability of eyeball movement ERP (Event related Potential) and therefore the characteristics, which possess steady, high voltage and 50ms rapid reaction. As ERP pattern discriminator, this paper proposes 3 methods to extract and distinguish characteristic patterns induced by several directional ocular movements. Eye Contact Game Using Mixed Reality For The Treatment of youngsters attentively Deficit Hyperactivity Disorder [6] proposes an observation where many children with ADHD perform poorly in their academics. They also face difficulty in their social lives thanks to lack of attention and also thanks to lack interpersonal skills and sometimes continues to their adult life. Considering the matter , this paper offers an answer where they need introduced and demonstrated the advantages of a replacement sort of treatment, an eye•contact game which successfully exploits mixed reality technology.

III. PROPOSED ALGORITHM

Algorithm used

Facial Landmark:

Face landmark detection is that the method of finding points of interest during a picture of an individual’s face. For example, we have shown the power to detect emotion through facial gestures, estimating gaze direction, changing facial appearance (face swap), augmenting faces with graphics, and puppeteering of virtual characters.



Visualizing the 68 facial landmark co-ordinates

Pseudo code

Step 1: Dataset

Testing the process whether the merchandise that’s developed with the standards that it hard been designed.

Step 2: Data Pre-processing

Integration testing is a phrase in which individual software modules are combined and tested as a group.It occurs after a unit testing and before validation testing.



Step 3: Feature Extraction

This module consists of first page that the user sees to enter his credentials. The entered credentials (Username, Password and Keyword) will be in a separate text file.

Step 4: Implementation

In this module, the user or the admin enters his or her credential as per the details given in the register module. If the login is a success, the user can authenticate through gaze.

Step 5: Accuracy

In this module, if the user forgets his password, he can create a new password by entering the keyword presented in register module.

IV. SIMULATION RESULTS

This chapter gives the outline of all testing methods that are administered to urge a bug free system. Quality are often achieved by testing the merchandise using different techniques at different phases of the project development. The purpose of testing is to discover errors. Testing is the process of trying to get every conceivable fault or weakness in a work product. It provides how to see the functionality of components sub-assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the software system meets its requirements and user expectations and does't fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

Test Environment

Testing is an integral part of software development. Testing process certifies whether the merchandise that's developed compiles with the standards that it had been designed to. Testing process involves building of test cases against which the merchandise has to be tested.

Unit Testing of Modules

Module 1: Registration

Steps	Test Data	Expected Results	Observed Results	Remarks
Step 1	Enter Username	Successful	Successful	Pass
Step 2	Enter Password	Successful	Successful	Pass
Step 3	Enter Keyword	Successful	Successful	Pass

Module 2: Login

Steps	Test Data	Expected Results	Observed Results	Remarks
Step 1	Enter Username	Successful	Successful	Pass
Step 2	Enter Password	Successful	Successful	Pass

Module 3: Forgot Password

Steps	Test Data	Expected Results	Observed Results	Remarks
Step 1	Enter Keyword	Successful	Successful	Pass
Step 2	Enter New Password	Successful	Successful	Pass

Integration Testing Of Modules

Registration: This module consists the first page that the user sees to enter his credentials. The entered credentials (Username, Password and keyword) will be stored in a separate text file. This module is represented by using front end implementation of the project.



Login: In this module, the user or the admin enters his or her credential as per the details given in the register module. If the login is a success, the user can authenticate through gaze based authentication. The conversion of eye blinks to morse code is represented by using back end implementation of the project.

Forgot Password: In this module, if the user forgets his password, he can create a new password by entering the keyword presented in register module.

V. CONCLUSION AND FUTURE WORK

Our project basically provides two factor authentication. Two factor authentication is actually providing two layer of security guard an account or system. Here we are making use of gaze based authentication and click on so on convert numbers or ASCII document thereby increasing the security. This projects is additionally helpful for disabled people so on authenticate. People from kids to old people can make use of this model who have basic knowledge on morse code. For blind people, there are keyboards with braille dots present on each button.

Concerning the long run enhancement we attempt to implement face recognition for each user, there will be no need to enter the password within the least. We are also trying to deploy this model in government sectors, with less number of steps required for authentication

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