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Enhancing The Human Perceivable Image Content In CAPTCHA Based BF Algorithm

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----------**ABSTRACT**----------

A novel technique of Captcha is regenerated by using composite images that are generated in the given data base. Captcha is a type of challenge response test used in computing to determine whether or not the user is human. Captcha are used to prevent bots or automated programs from using various types of computing services or collecting certain types of sensitive information. Modern techniques such as fcaptcha & dcaptcha are used to separate abilities invariant recognition, segmentation and parsing. Captcha is a test made of an image and distorted text that has to be solved by human users when they want to subscribe to websites that want to make sure the user is a human being or a computer to prevent the spam. Hence various methods are done through dcaptcha their some drawbacks such as data access only possible not for the image and recognition access, these drawbacks is overcome by using the fcaptcha technique here it can be identify both figure and data simultaneously hence to prove the recaptcha as early. Image separation is done in the two forms Extracting the distorted image to improve the performance and to get back the robustness of the image by removing the noise which presented in the data base by using Gaussian Distributing filters and hence the second separation is done by using the BF (Background & Foreground Extraction) which helps in the extracting the input image and also the noise removed image in the form of two B & F, which represents the image identification for the corresponding data to be selected in any mode of places may be at nature or human images. Here it can identify the person is avail to enter the procedure. The image is evaluated by using various image enhancement techniques.

KEYWORDS: *Captcha, Exctraction algorthim, Gaussain filters.*

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I. INTRODUCTION

A novel approach for feature learning and information security by unifying Image Processing techniques and Image Encryption. Enhanced images are processed by edge detectors followed by segmentation using the Radon transform. These characteristics are then transformed to a multi-dimensional space using the Gabor Transform to obtain the required feature vector. The uniqueness and the preservation of the image features is found to be maximum using this form of representation. Further the acquired vector is transmitted by using matrix-based encryption techniques. In this paper, the unification of the two is done using a common matrix environment.

During the last 20 years, Image Processing Systems have made considerable growth. The two most common methods currently employed are structural methods (character recognition, contour analysis) and feature space methods, the latter being more efficient. Feature Space Pattern Recognition involves a set of measurements made on a real world entity followed by the corresponding feature extraction based on these measurements to characterize the class of shapes and patterns obtained. This form of Information Learning therefore requires an accurate recognition and classification of the image. This process has made great progress using Bayesian classifiers and decision trees. But when the system information is of higher orders, the image is

covered by noise, and patterns are confused with each other or incomplete, image based modeling is very difficult.

A CAPTCHA (an acronym for "Completely Automated Public Turing test to tell Computers and Humans Apart") is a type of challenge response test used in computing to determine whether or not the user is human. This form of CAPTCHA requires that the user type the letters of a distorted image, sometimes with the addition of an obscured sequence of letters or digits that appears on the screen. Because the test is administered by a computer, in contrast to the standard Turing test that is administered by a human, a CAPTCHA is sometimes described as a reverse Turing test.

Generating CAPTCHAs through random field simulation and give a novel, effective and efficient algorithm to do so. Indeed demonstrate that sufficient information about word tests for easy human recognition is contained in the site marginal probabilities and the site-to-nearby-site covariances and these quantities can be embedded into KNW conditional probabilities, designed for effective simulation. The CAPTCHAs are then partial random realizations of the random CAPTCHA word: start with an initial random field (e.g., randomly scattered letter pieces) and use Gibbs resampling to re-simulate portions of the field repeatedly using the KNW conditional probabilities until the word becomes human-readable. The residual randomness from the initial random field together with the random implementation of the CAPTCHA word provides significant resistance to attack.

II. LITERATURE SURVEY

Genetically Optimized Face Image CAPTCHA A novel image-based CAPTCHA that combines the touch-based input methods favored by mobile devices with genetically optimized face detection tests to provide a solution that is simple for humans to solve ready for worldwide use and provides a high level of security by being resilient to automated computer attacks. In extensive testing involving over 2600 users and 40 000 CAPTCHA tests *fg*CAPTCHA demonstrates a very high human success rate while ensuring a 0% attack rate using three well-known face detection algorithms.[1]

CAPTCHA As Graphical Passwords—A New Security Primitive Based On Hard AI Problems CARP is both a CAPTCHA and a graphical password scheme. Carp addresses a number of security problems altogether, such as online guessing attacks, relay attacks, and, if combined with dual-view technologies, shoulder-surfing attacks. Notably, a Carp password can be found only probabilistically by automatic online guessing attacks even if the password is in the search set. Carp also offers a novel approach to address the well-known image hotspot problem in popular graphical password systems, such as Pass Points, that often leads to weak password choices.[2]

CAPTCHA: An Improvement On The Modern Text-Based CAPTCHA In this system image scenes of a complex nature are presented to the user along with a piece of challenge text asking the user to identify objects in the image with a simple click. While this task is unproblematic for the typical Internet user it is an incredibly challenging image processing task for an automated program without proper context. Initial in-depth analysis is able to demonstrate the user-friendly nature of the system while outlining the struggle in which automated attackers will face.[3]

Designing CAPTCHA Algorithm: Splitting And Rotating The Images Against OCRs Completely Automated Public Turing Test to Tell Computers and Human Apart (CAPTCHA) is such a defense system against Optical Character Recognition (OCR) software. OCR can be defined as software which work for defeating CAPTCHA images and make countless number of registrations on the websites. This study focuses on a new method which is splitting CAPTCHA images into several parts with random rotation values, and drawing random lines on a grid background. Lines are in the same color with the CAPTCHA text and they provide a distortion of image with grid background. [4]

Hybrid Collage CAPTCHA One of the CAPTCHA methods is Collage CAPTCHA. It is a method for distinction between human and computer programs through recognition and finding a picture of an object among some objects. In this project improve the resistance of Collage CAPTCHA method by an improved method called Hybrid Collage CAPTCHA. A survey on different CAPTCHA techniques Compare and evaluate the performance of different types of CAPTCHAs based on their security and usability.[5]

CAPTCHA: A Security Measure against Spam Attacks CAPCHA is used as a simple puzzle which restricts various automated programs (also known as internet-bots) to sign-up e-mail accounts, cracking passwords, spam sending etc. A common type of CAPTCHA requires user to recognize the letters from a distorted image, since normal human can easily recognize the CAPTCHA, while that particular text cannot be recognized by bot. In short CAPTCHA program challenges the automated program, which trying to access private data. So, CAPTCHA helps in preventing the access of personal mail accounts by some unauthorized automated spamming programs. Image recognition CAPTCHAS Three CAPTCHAs based on naming images, distinguishing images, and identifying an anomalous image out of a set. Novel contributions include proposals for two new CAPTCHAs, the first user study on image recognition CAPTCHAs, and a new metric for evaluating CAPTCHAs.[6]

A Robust Image-Based CAPTCHA Generation System IMAGINATION (Image Generation for Internet Authentication) a system for the generation of attack-resistant, user-friendly, image-based CAPTCHAs. In that system produce controlled distortions on randomly chosen images and present them to the user for annotation from a given list of words. The distortions are performed in a way that satisfies the incongruous requirements of low perceptual degradation and high resistance to attack by content-based image retrieval systems.[7]

Design and Comparison of Advanced Color Based Image CAPTCHAS To examine whether or not machines can think or appear to think like humans. The main purpose of a CAPTCHA is to block form submissions from spam bots- that is automated scripts. Various types of CAPTCHAs are used, which mostly requires users to enter the strings of characters that appear in distorted form on the screen. These types of distorted stings are unable to understand by bots but human can. The CAPTCHA types are either text based or image based. In this paper, a new color based CAPTCHA is described, which provides color based images to human and human will answer to interrogator with color name or so on the question asked during turing test. These colored images can have single color image, more than one color image or it can have images with objects (like monitor, car, flower etc). For these types of questions, the computer machine will be unable to answer and it means unable to break CAPTCHA. This paper describes in detail the proposed CAPTCHA technology principle, method of implementation, variations and comparison of the accuracy rates.[8]

Securing Websites through Multi-CAPTCHA CAPTCHA is believed to be vulnerable to 3rd party human attacks due to the nature of its design. The novel multi-CAPTCHA system which provides simple yet effective defense against 3rd party human solver attacks. The multi-step back and forth traffic between client and server amplifies the statistical timing difference between a legitimate user and a human solver attack, and hence, provides a better attack detection performance. As the first step towards defending against the growing threat of 3rd party human CAPTCHA attacks, hope that the proposed multi-CAPTCHA system will encourage researchers and the security industry to develop more secure and reliable CAPTCHAs.[9]

III. TECHNIQUES FOR PROPOSED WORK

CAPTCHA is easy for human to solve but difficult for computer to solve. Proposed CAPTCHA combination of image recognition CAPTCHA and question based CAPTCHA. To overcome the drawback of text based CAPTCHA go for image based CAPTCHA. Enhancing the Gaussian algorithm in the distortion for increasing the human success rate. Image based CAPTCHA is user-friendly and as well as makes difficult to bots. It keeps away the bots from the unwanted login. And the question based CAPTCHA also makes tougher to the bots.

Advantages

- Design a new image based CAPTCHA technique.
- CAPTCHA is a user detection or robot/ autobot rejection technique used to verify that the user is human or not.
- These two way authentication based CAPTCHA avoids the spammers and the computers from the break of CAPTCHA.

Edge detection algorithm

Highlighting the edge points in an image differentiation Or High pass filters. This block finds the pixel locations where the magnitude of the gradient of intensity is larger than a threshold value. Edge detection is one of the most commonly used operations in image analysis and there are probably more algorithms in the literature for enhancing and detecting edges than any other single subject.

Gaussians algorithm

Model the values of a particular pixel as a mixture of Gaussians. Determine which Gaussians may correspond to background colors-Based on the persistence and the variance of each of the Gaussians. Pixel values that do not fit the background distributions are considered foreground until there is a Gaussian that includes them. Update the Gaussians. Pixel values that do not match one of the pixel's "background" Gaussians are grouped using connected components.

Homogeneous regions

By proper Thresholding Yield number of regions Selection of Value of Threshold or optimum threshold. Similarity based or dissimilarity based Region based or edge based Region growing , Region splitting and merging.

Background Model Estimation

Determine which of the Gaussians of the mixture are most likely produced by background processes. Are interested in the Gaussian distributions which have the most supporting evidence = and the least variance. For "background" distributions when a static, persistent object is visible hige weight and relatively low variance. New object occludes the background object creation of a distribution or the increase in the variance of an existing distribution the variance of the moving object is expected to remain larger than a background pixel until the moving object stops low weight and relatively hige variance. The Gaussians are ordered by the value of ω/σ. Then, the first B distributions are chosen as the background model, where

$$B = argmin_b\left(\sum_{k=1}^{b}\omega_k > T\right),$$

T is a measure of the minimum portion of the data that should be accounted for by the background. Background modeling constructs a reference image representing the background. Threshold selection determines appropriate threshold values used in the subtraction operation to obtain a desired detection rate. Pixel classification classifies the type of a given pixel, i.e., the pixel is the part of background (including ordinary background and shaded background), or it is a moving object.

Pixel Classification or Subtraction Operation

Original background (B): Brightness and chromaticity similar to those of the same pixel in the background image. Shaded background (S): Similar chromaticity but lower brightness. Highlighted background (H): Similar chromaticity but higher brightness. Moving foreground object (F): Chromaticity different from the expected values in the background image.

Click-and-annotate process

Click-and-annotate process in which a user needs to click on the interface. The system presents the user with a set of 4 images tiled to form a single composite image. The user must then select an image she wants to annotate by clicking near its geometric center. If the location of the click is near one of the centers a controlled distortion is performed on the selected image and displayed along with a set of word choices pertaining to it and the user must choose the appropriate one.

Features Extraction and Image Category Classifiers

Here used and tested 4 types of features to build our image category classifiers:

- Edge Histograms (6x8 regions)
- Color Moments (RGB, 3x3 regions)
- Color Histograms (32+32 bins in CbCr)
- GIST features (314 dims. vectors)

Edge histograms were computed by simply applying a LoG filter to the grayscale image, split the edge image into 6x8 regions and then counting the number of edges in each region. Color moments were 1x9 vectors computed as in Assignment 2, with mean, variance and skewness of 9 subregions of the image computed for each of the RGB channels. Color histograms were computed as 32 bins histograms in the Cb and Cr channels

from YCbCr and concatenated into a 1x64 feature vector. The chrominance plane CbCr was used to partially avoid dependence from illumination changes and instead extract pure color information.

GIST features are richer descriptors combining birth color and intensity information, computed as responses to filters applied at different orientations and scales, and to different sub regions of the image itself. It's used the implementation from Antonio Torralba at MIT7 with default settings, which produced 1x314 vectors. For each type of feature and for each category trained an SVM classifier from the ~500 positive examples downloaded from Flickr for that category and ~500 negative examples randomly selected from the other 25 categories presents the image category recognition performances on the 200 test challenges of the SVM classifiers built on the 4 feature types. The best performing (as expected, since it's a richer descriptor) is GIST.

SVM Applications

SVM has been used successfully in many real-world problems
- Text (and hypertext) categorization
- Image classification
- Bioinformatics (Protein classification, Cancer classification)
- Hand-written character recognition

Multi-Class Classification With SVM

1) With output arity m, learn m SVM's

- SVM 1 learns "Output==1" vs "Output != 1"
- SVM 2 learns "Output==2" vs "Output != 2"
- SVM m learns "Output==m" vs "Output != m"

2)To predict the output for a new input, just predict with each SVM and find out which one puts the prediction the furthest into the positive region.

Feature selection and Extraction

Pattern Recognition typically consists of three stages and four spaces. First, the physical world is sensed by some transducer system which inputs raw data from raw measurement space into the pattern space. The physical world can be represented by a continuum of raw data and is essentially infinite in dimensionality. The transducer describes a representation of that world with *N* scalar values where *N* is typically quite large. Second, the pattern data can be converted by feature extraction to appropriate features which represent patterns to be used in recognition, thus defining the feature space. The feature space dimensionality is postulated to be much smaller than the dimensionality of pattern space. Third, a classifier or decision rule is used to separate patterns into different classes.

Classifier performance based on a small number of training samples improves up to a point, then deteriorates as additional features are added in the classifier design. The peaking behavior in practical classifiers is due to the "non-optimal" use of added information which tends to outweigh the advantage of extra information. This phenomenon is often referred to as the "curse of dimensionality." In practical classifier design, the removal of redundant and irrelevant features, which reduces the incidence of relevant features being masked by irrelevant ones, can increase reliability of the classifier. This is especially important for high-dimensionality pattern recognition.

Validation Process

Use k- NN as our final method for classifying digits. For each type of CAPTCHA, five different classifiers are created by using all of the training data and the five sets of features associated with that particular type of CAPTCHA. Again use cross - validation to discover the optimal parameter, in this case k=1. Use Euclidian distance an s our distance metric.

K-NN stands for k Nearest Neighbor. In data mining and predictive modeling it refers to a memory-based (or instance-based) algorithm for classification and regression problems. It is a widely used algorithm with many successfully applications. Theoretically K-NN algorithm is very simple to implement. The naive version of the algorithm is easy to implement. Choose those shortest k examples among stored vectors. It is however computationally intensive especially when the size of the training set grows. Using an appropriate nearest neighbor search algorithm makes k-NN computationally tractable even for large data sets. It is analytically tractable. It is highly adaptive to local information. K-NN algorithm uses the closest data points for

estimation, therefore it is able to take full advantage of local information and form highly nonlinear, highly adaptive decision boundaries for each data point.

IV. SYSTEM MODEL

CAPTCHA is easy for human to solve but difficult for computer to solve. Proposed CAPTCHA combination of image recognition CAPTCHA. To overcome the drawback of text based CAPTCHA go for image based CAPTCHA. Enhancing the Gaussian algorithm in the distortion for increasing the human success rate. Image based CAPTCHA is user-friendly and as well as makes difficult to bots. It keeps away the bots from the unwanted login. And the question based CAPTCHA also makes tougher to the bots. Here in this paper 2-way authentication based CAPTCHA to make machine/bots access difficult. The advantages are Design a new image based CAPTCHA technique. CAPTCHA is a user detection or robot/ autobot rejection technique used to verify that the user is human or not. These two way authentication based CAPTCHA avoids the spammers and the computers from the break of CAPTCHA.

ARCHITECTURE DIAGRAM

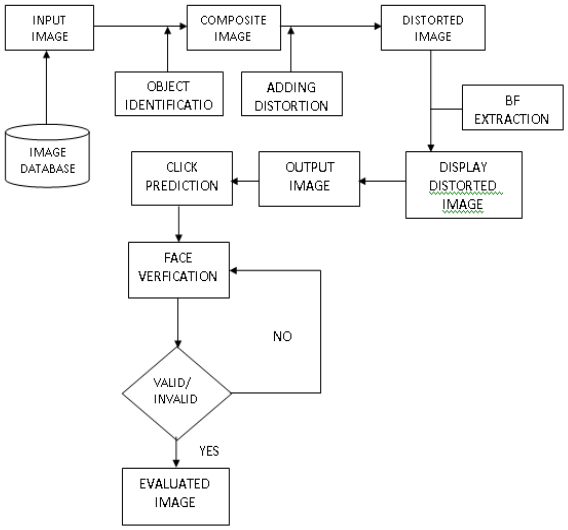

Figure:1. Architecture Diagram

V. PROJECT DESCRIPTION

1. Composite Image Generation

The composite image generation is adding the background and foreground images in a frame. The images on the frame are called as the objects. Overlapping or merging images are the composite image generation. Given an annotated database of images consisting of simple concepts and objects, the system randomly selects a set of images with their corresponding annotations. A rectangular region is divided into 8 random orthogonal partitions and by a one-to-one mapping, each image is placed into a partition, scaled as necessary, forming a preliminary composite image.

Click And Annotate Process

If the click is not near any of the centers or the choice is invalid the test restarts. Otherwise this click-and annotate process is repeated one more time passing which the CAPTCHA is considered cleared. The reason for having the click phase is that the word choices are limited, making random attack rate fairly high. Instead of having numerous rounds of annotate user clicks tend to make the system more user-friendly while decreasing the attack rate.

The image is randomly divided into two different sets of 8 orthogonal partitions and dithering is applied on these two sets sequentially, forming the required composite image. Dithering parameters that are varied independently over each partition include the base colors used (18, randomly chosen in RGB space), resulting in different color gamut's, and the coefficients used for spreading the quantization error. These steps ensure that

the task of automatically determining the geometric centers of the images remain challenging, while human imagination continues to steer rough identification. The difficulty in automated detection arises from the fact that partitioning and subsequent dithering cuts the original image tiling arbitrarily, making techniques such as edge/rectangle detection generate many false boundaries.

2. Determining Distortions

The set of distortion is called as chromosomes. It contains the distortion like salt- pepper noise. Here adding the Gaussian Algorithm, it makes the smooth image and Gaussian filter makes the edge sharpen. Images can be distorted in various ways. The design of an allowed distortion set requires the inclusion of distortions that maintain good visual clarity for recognition by humans while making automated recognition hard. CAPTCHA requires that the annotated database and relevant code be publicly available, for added security. If undistorted images from the database were presented as CAPTCHAs, attacks would be trivial. Previous systems proposed are liable to such attacks. If the images are randomly distorted before being presented to the user, it may still be possible to perform attacks using computer vision techniques such as affine/scale invariant features and CBIR.

Aim at building image-based CAPTCHAs secure against such attacks. Certain assumptions about possible attack strategies are needed in order to design attack-resistant distortions. Here, that the only feasible way is to use CBIR to perform inexact matches between the distorted image and the set of images in the database, and use the label associated with an appropriately matched one for attack. This assumption is reasonable since attack strategy needs to work on the entire image database in real-time in order to be effective, and image retrieval usually scales better than other techniques.

Smoothing with box filter revisited

Smoothing with an average actually doesn't compare at all well with a defocused lens. Most obvious difference is that a single point of light viewed in a defocused lens looks like a fuzzy blob; but the averaging process would give a little square. Smoothing with an average actually doesn't compare at all well with a defocused lens. Most obvious difference is that a single point of light viewed in a defocused lens looks like a fuzzy blob; but the averaging process would give a little square. Better idea: to eliminate edge effects, weight contribution of neighborhood pixels according to their closeness to the center.

3. Image Classification & Extraction

In image classification, an image is classified according to its visual content. Extraction is the process of extracting the images of foreground and background. This extraction technique will increase the human success rate on the CAPTCHA. Sometimes the images on the CAPTCHA were distorted heavily, so the images quality will be lost and the user finds difficulty in that image.

Here classification and extraction bring the image based CAPTCHA more user friendly and makes difficult to the rots, spammers. For example, does it contain an airplane or not. An important application is image retrieval - searching through an image dataset to obtain (or retrieve) those images with particular visual content.

The goal of this exercise is to get basic practical experience with image classification. It includes: (i) training a visual classifier for five different image classes (aeroplanes, motorbikes, people, horses and cars); (ii) assessing the performance of the classifier by computing a precision-recall curve; (iii) varying the visual representation used for the feature vector, and the feature map used for the classifier; and (iv) obtaining training data for new classifiers using Google / Bing image search.

Feature selection and extraction

Feature selection and extraction are crucial in optimizing performance and strongly affect classifier design. How many features and what kind of features should be used in classifier design can be a difficult problem. It is true that, if the number of training samples is infinite, that is the class-conditional density functions are completely known, then one could not improve the performance (decrease classification error) of a Bayesian classifier by eliminating a feature.

This property is called monotonicity. However, in practice, because of the limited number and various anomalies in the training samples, that assumption in the design of Bayes classifiers is almost never valid. Most practical pattern recognition systems employ a non-Bayesian decision rule because the use of the optimal Bayesian approach requires knowledge of a prior density and its complexity precludes the development of real-time recognition systems.

4. Pattern Recognition And Image Analysis

Advances in Mathematical Theory and Applications is a per reviewed international journal featuring top papers in pattern recognition and image, analysis, understanding, and processing of images. Emphasis is laid on rapid publishing of concise articles covering theory, methodology, and applications. Major topics include mathematical theory of pattern recognition and image analysis, raw data representation, computer vision, image mining, processing and understanding, machine learning, computer graphics, forecasting, data and knowledge bases, data mining, neural nets, artificial intelligence, software, specialized computer architectures, applications, and related areas.[11]

Pattern Recognition and Image Analysis

In the Pattern Recognition and Image Analysis Unit to develop image analysis algorithms that are capable of identifying patterns in multidimensional and multimodal imaging data arising in several natural and life science applications. Develop state-of-the-art computer vision, machine learning, and data mining algorithms to analyze such data for the purpose of computer aideddiagnosis in medicine and for phenotyping applications.

Our uniqueness is that develop such solutions in distributed environments (such as cloud computing) to handle the large amount of data and deal with the complexity of the problem. Finally also develop new compression algorithms that take advantage of automated analysis to further reduce the amount of data that are transferred across the networks.

Support Vector Machine (SVM)

- Flexibility in choosing a similarity function
- Sparseness of solution when dealing with large data sets
- only support vectors are used to specify the separating hyper plane
- Ability to handle large feature spaces
- complexity does not depend on the dimensionality of the feature space
- Over fitting can be controlled by soft margin approach.
- Nice math property: a simple convex optimization problem which is guaranteed to converge to a single global solution
- Feature Selection

5. Face Identification

To do face detection first need a dataset of images of faces and non-faces. Because it will do supervised training, which means already telling the computer if each picture is a face or non-face, you need to get those images. In case, the obtained a database from MIT which was composed of 2429 faces and 4547 non faces. The images are 19X19 (later I realized that I should have looked for something in the range of 25 X 25, it seems to capture features better). They are all black and white images. Here are some of them.

Once you have your own nice database, you need to understand the Haar features. They are rectangles that map over the faces of people and tell you if you are a face or non-face. It will explain how this is accomplished later. In here it will just focus on what took me a long time to figure out.

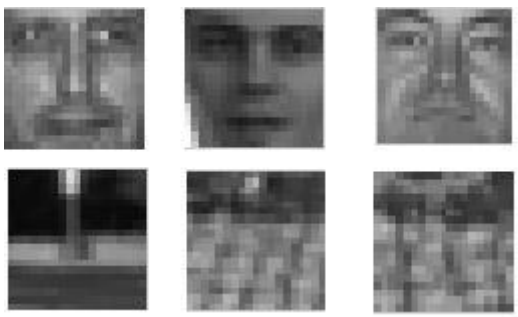

Figure: 2. Face Identification

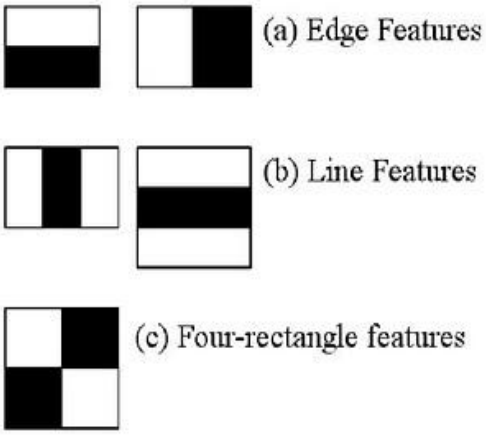

Figure: 3. Haar features

There are so many more variations, but these are the only ones used. So let's take the first one in the list here. A white rectangle above a black rectangle.

The reason for this is that edges form the outline of an object, in the generic sense. Objects are subjects of interest in image analysis and vision systems. An edge is the boundary between an object and the background, and indicates the boundary between overlapping objects. This means that if the edges in an image can be identified accurately, all the objects can be located, and basic properties such as area, perimeter, and shape can be measured. Since computer vision involves the identification and classification of objects in an image, edge detection is an essential tool.

An Edge Deduction algorithm for eye detection on face images, including low resolution ones, is presented in this paper. Pixel intensity information might prove unreliable due to varying lighting conditions. It is main purpose low resolution images; details of the eyes sometimes are lost. It detects the eyes region on a face. Deduction Algorithm consists of a feature finder and a face morphed.

CONCLUSION

This CAPTCHA will avoid machine learning attacks due to its complexity Confidentiality is assured in this CAPTCHA, so that only human decode the CAPTCHA. Multilevel authentication improves security. Here, Add Gaussian Noise will improve the image based CAPTCHA. The image based CAPTCHAs are effective way to counters bots and reduce spam. CAPTCHA help advance Artificial Intelligence Knowledge. The new form of CAPTCHA likely to be more robust against attacks by the spammers and machines.

The future work is to complete the overall proposed system and implement that. Have to enhance the support vector machine, CBIR and Image Pattern. Some issues with current implementations represent challenges for future improvements.

REFERENCES

[1] Briam m. Powell[1], Gaurav Goswami[2], Mayank Vatsa[2],and Afzel Noore[1], "fgCAPTCHA: Genetically Optimized Face Image CAPTCHA," May 21, 2014.

[2] Zhu, B.B. Microsoft Res. Asia, Beijing, China Yan, J. ; Guanbo Bao ; Maowei Yang ; Ning Xu, Captcha as Graphical Passwords—A New Security Primitive Based on Hard AI Problems, ieee transactions on information forensics and security, vol. 9, no. 6, june 2014

[3] Charlie Obimbo, Andrew Halligan, Patrick De Freitas, CaptchAll: An Improvement on the Modern Text-based CAPTCHA, School of Computer Science, University of Guelph, Guelph, ON N1L 1L9, CANADA Available online 14 November 2013

[4] Tae-Cheon Yang1 , Hwan-Gue Cho , , Ibrahim Furkan Ince, Ilker Yengin, Yucel Batu Salman Designing Captcha Algorithm: Splitting and Rotating the Images Against OCRS, 978-0-7695-3407-7/08 $25.00 © 2008 IEEE DOI 10.1109/ICCIT.2008.195

[5] Aditya Jaiswal, Divya Shanker, Prashant Gupta, "Hybrid Collage CAPTCHA," INTERNATIONAL JOURNAL OF SCIENTIFIC & ENGINEERING RESEARCH, VOLUME 4, ISSUE 1, JANUARY-2013.

[6] Pawar S.E[1], Bauskar Makarand M[2], CAPTCHA: A SECURITY MEASURE AGAINST SPAM ATTACKS, IJRET: International Journal of Research in Engineering and Technology ISSN: 2319-1163, Volume: 02 Issue: 05 | May-2013

[7] Ritendra Datta, Jia Li, and James Z. Wang, IMAGINATION: A Robust Image-based CAPTCHA Generation System, MM'05, November 6–11, 2005, Singapore. Copyright 2005 ACM 1-59593-044-2/05/0011

[8] Mandeep Kumar, Renu Dhir, PhD. Design and Comparison of Advanced Color based Image CAPTCHAs, international Journal of Computer Applications (0975 – 8887) Volume 61– No.15, January 2013

[9] Mr. Shaik Muhammed Manzoor, Mrs. Kumari R Soumya, Securing Websites through Multi-CAPTCHA, IJCAT International Journal of Computing and Technology, Volume 1, Issue 2, March 2014 ISSN : 2348 - 6090 www.IJCAT.org

[10] Chew. M and Baird. H. S., "Bafetext: A Human Interactive Proof," in proc. Document Recognit. Retr. X, Santa Clara, ca, USA, Jan. 2003, pp. 305316.

[11] Yuri I. Zhuravlev,Pattern Recognition and Image Analysis ISSN: 1054-6618 (Print) 1555 6212(Online)

[12] Henry S. Baird and Terry Riopka, "Scattertype: A Reading CAPTCHA Resistant to Segmentation Attack," [accepted for publication in proceedings, is&t/spie document recognition & retrieval xii conference, san jose, ca, January 16{20, 2005.].

[13] Hyejeong Lee, Sang-ho Lee, Taeseok Kim, and Hyokyung Bahn, "Secure User Identification for Consumer Electronics Devices," IEEE transactions on consumer electronics, vol. 54, no. 4, November 2008.

[13] Jean-Camilie Birget, Dawei Hong, and Nasir Memon, "Graphical Passwords Based on Robust Discretization," vol 1, no. 3. September 2006.

[14] Kumary R Soumya[1], Rose Mary Abraham[2], Swathi K V[3], "A Survey on Different CAPTCHA Techniques," International Journal of Advances in Computer Science and Technology volume 3, no.2, February 2014.

[15] Luis Von Ahn,* Benjamin Maurer, Colin Mcmillen, David Abraham, Manuel Blum, "reCAPTCHA: Human-Based Character Recognition via Web Security Measures," www.sciencemag.org science vol 321 12 September 2008.

[16] Adarsh Baluni and Sayali Gole, "Two-Step CAPTCHA: Using a Simple Two Step Turing Test to Differentiate Between Humans and Bots," International Journal of Computer Applications (0975 – 8887) Volume 81 – No 16, November 2013.