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Emotion Recognition Using Human Computation Technique

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ABSTRACT: In this paper, we proposed a competitive human computing game, face emotion recognition to recognize the emotions from the image of human face. A human computing paradigm has enormous potential to address problems that computers can't get tackle on their own and eventually teach computers many of these human talents. Many tasks are trivial for humans, but very challenging for computer programs. Unlike computer processor, human require some incentives to become part of a collective computation games are the seductive method for encouraging people to participate mechanism for using brain power to solve open problems. It must be proven correct, its efficiency can be analyzed, and a more efficient version can supersede a less efficient one and so on. "Game with a Purpose" have a vast range of application in area as diverse as security, computer vision, internet accessibility, adult content filtering, internet search and one such a game is the face emotion recognition. It demonstrates how human solve problems as they play while computers can't yet solve. This face emotion recognition is the game which associates more than 10 players at a time. The players are provided with a random and similar image of a face and they are requested to identify the emotion of that face. The response of the majority will be considered as a resultant emotion. Having that resultant emotion, the system will provide the reply to all the players' whether the selected emotion is right or wrong. The details of each player such as player name, emotion they recognized are stored in the database. Here we implement this logic of human computation such that any complex machine algorithms need not be used and hence lower time and space has been achieved.

KEYWORDS: Emotion recognizing, Human Computation Games, recognize, Game With A Purpose.

I. INTRODUCTION

There are large numbers of people around the world who spend billions of hours playing computer games. The idea is to channel these time and energy into a useful work. People playing computer games could simultaneously solve large-scale problems without consciously doing so. Despite colossal advances over the past 50 years, computers still don't possess the basic conceptual intelligence or perceptual capabilities that most humans take for granted. Here the face emotion recognition game successfully demonstrates the potential of using human efforts to accomplish task that are intractable for computers many application have been developed to solve different computational hard problem such as common sense collection and music annotation. One such game

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application is, Face Emotion Recognition .however there are some issues in this kind of cheating forming coalitions. The players may intentionally select the wrong answer options to collapse the game to avoid this here training set of images are given for the first 25 sessions. Here the IP address of the players also checked to ensure that they are not grouped with themselves in any local proximity.

1.1 HUMAN COMPUTING GAME

Human computation aims to solve problems that are hard for computers by utilizing human brain powers. For example, Amazon Mechanical Turk1 provides a marketplace for the developer to outsource human intelligence tasks. Human computation games, also called Game With A Purpose (GWAP), propose that using computer games can gather human players and solve open problems as a side effect of playing. The GWAP approach has been shown to be useful and is widely used in various domains, such as Image tagging commonsense collection and Music annotation. To ensure the quality of the collected labels, most GWAP implementations adopt consensus opinions as the correctness measure. Taking the FER game as an example, image labels are generated by collecting descriptions which both players agree in the game. In Luis von Ahn proposed three game- templates, which summaries their successful experiences in deploying GWAPs. The three templates, namely input-agreement games, output- agreement games, and inversion-problem games, rely on player's collaborations to collect consensus opinions. In contrast to previous work, we demonstrate the game design integrating competitive elements

1.2 PURPOSE OF EMOTION RECOGNITION

Armed with the first comprehensive encyclopedia of emotion, they presented the multimedia company with the challenge of developing some software that would be suitable for people of all ages and abilities, who wanted to learn more about emotion recognition. They limited the brief by focusing on the expression of emotion through the face and the voice. The result is the face emotion recognition. To make it useful as a teaching tool, for parents, teachers, therapists and users directly, the game tests the matching emotion words to face, emotions in modulation with emotion in the face, the unenthusiastic student into learning about emotions, we have included a Games Zone, in which learning about emotions happens at an angle .Whilst keeping in mind people with autism as one important group of potential users, we recognize that there are many reasons to learn about emotions. Emotion recognition problems affect other clinical conditions, such as difficult-to- manage children or people with learning difficulties. Emotion recognition is also an important area of study for people working in the dramatic arts. The world of emotions is also a key area in people -centered professions. Social-skills training is also part of management training, and an important part of the national curriculum in mainstream schools, through Personal and Social Education' (PSE). There are some apparent rewards to studying emotions on computer, for people with autism. First, emotions in the real world happen very fast, and are transient. On the computer, one can play them over and over again, until they really crazed them. Secondly, putting emotions into the computer might solve the problem that some people with autism have, of not particularly wanting to socialize, yet needing to learn about people. In divorcing emotions from people, and in using computers as the learning tool (one which many people with autism actually enjoy), this approach may lead to better learning. Emotions without the anxiety may escort real social interaction.

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II. GAME MECHANISMS

Face Emotion Recognition (FER) is intended for a minimum of five online players. At opening, the players are requested to provide their names. The players from different proximity who logs in within 3 seconds are clustered together and are provided with the same image. As a second step, the players are requested to identify the emotion of that image. After identifying the emotions, the players should select the emotion which suits their image. The selected result will be stored into the database. There it validate with the maximum number of same emotion selected. The emotion selected by the maximum number of players is considered as the correct emotion. The players who selected the correct emotion are provided with 5 points.

In the commencement of each round all the players are provided with 10 seconds for identifying the emotion. These seconds are decreased by 1 for each second. Before second's value comes to 0, the players should identify the emotion of the given face (i.e.) within
10 seconds they have to identify the emotion .After the time limit the images will be swapped automatically by the next subsequent image. If the player doesn't select the emotion within the time limit then automatically the result is considered as incorrect.

2.1 IDENTIFING THE EMOTION

In the Face Emotion Recognition Game, the players
perform the process of identifying the face emotion from the given image. This process usually involves selecting one of the emotions that suits the face image and also they are provided time limit to identify the emotion

2.2 IMAGES AND LABELS

The FER Game is a multi-player online game with minimum of 10 players from the Web. From the player's perspective, the goal of the FER Game is to guess the emotion of the image presented and to select the correct emotion that suits the image. Once the player selects the emotion, they move on to the next image string. The emotion which many players selected will be the resultant emotion.

2.3 GAME POINTS AND THE BONUS ROUND Although the exact number of points given to the players for different actions is not important, we mention it to show the relative proportions. Furthermore, we mention the different point strategies used by FER to keep players engaged and to avoid cheating .Points are given to all the players equally who guesses the correct emotion. In the current implementation, all obtain 50 points. There is no deduction of points for passed session.

2.4 UNETHICAL

FER is a multiplayer game who works to maximize their score. We obtain correct information as the players do not converse outside the game environment. If any of them collude to cheat on the game, the game could be disillusioned. For instance, if more than 5 players know each other and have an outside means of communication, then they can simply tell each other what to select. FER contains multiple anti-cheating mechanisms. Through a combination of online in-game enforcement and offline analysis, we are able to detect and deal with cheating. Before detailing FER anti-cheating measures, we mention that cheating attempts are uncommon. Although a minority of players might obtain satisfaction from "gaming the system," the majority of them just want to play the game honestly. Let M<= n be the number of cheaters. If (n-m) images are having same result, then this method was truthful otherwise the method must be restructured based on historical performance data and then tuned accordingly.

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2.5 THE PLAYER QUEUE

When players log on to the game server, they are not immediately join the game. Instead, the server makes them wait n seconds, where n is the number of seconds until all the other minimum of ten players grouping interval. Currently, grouping intervals happen every 10 seconds, and when they do, the server matches everyone in the queue with the game. With a large number of players in the system, we can ensure that a player's are grouped in random and prevent colluders from getting group just because they clicked "start playing" at the same time.

2.6 ROUTER ID CHECKS

We also check player's ROUTER ID to ensure that they are not grouped with themselves or with others that have a similar address (similarity in ROUTER ID can imply geographical proximity).

2.7 TRAINING SET OF IMAGES

As it is a web-based game, one point of concern is that bots (i.e. automated players) might play the game and pollute the game. To detect them, we introduce Training set of images into the system; in which we have hand- verified metadata. On being presented images, if a player consistently fails to click on the relevant emotion when playing, they will be considered to be a blacklist. We discard those blacklisted player from current and future game associated with anyone on the blacklist. Notice that, almost by definition, a computer program cannot successfully play FER— if it were able to do so, then it would be able to recognize the emotion in the images. Therefore, this strategy prevents bots (as well as otherwise malicious players) from poisoning our game. However, even if players are successful in such a strategy, the other anti-collusion mechanisms can deal with the corrupted data.

III. METHOD ANALYSIS

INPUT: set of all emotions selected by the player in all sessions

OUTPUT: Emotion selected by the maximum number of players in each session.
We assume E= {Sad, Happy, Angry, Disgust, Surprise, Fear}
Ri =set of all emotional label selected by players in session i
Step 1:Enter User ID
Step2 : Check IP address of the user that they not from the same location.
Step 3: If Step 2 is valid group the players with minimum size 10 .
Step 4: If Step 3 is valid start the game else wait until get valid.

3.1 PERFORM TRAINING METHOD

STEP 1: Face Image with various emotions is displayed.
STEP 2: Players select the relevant emotion that suits the face image.
STEP 3: Check whether the selected emotion matches
with the stored result.
STEP 4: If step 3 is true, grant 5 points. STEP 5: Else give 0 points.
STEP 6: Continue step 1 to 5 for 25 game
sessions. STEP 7: Check the final score is greater
than or equal to 100.
STEP 8: If step 7 is true proceed with
Main game.

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STEP 9: Else discard from game.

TABLE 1

Player No.	Player Name	Emotion Selected
001	Ajith	Happy
002	Vijay	Sad
003	Sindhu	Anger
004	Ram	Disgust
005	Vinodhini	Surprise
006	Ajay	Happy
007	Lakshmi	Happy
008	Vijaya	Disgust
009	Charu	Sad
010	Ramya	Anger

3.2 PERFORM MAIN METHOD

STEP 1: R = PSad U PHappy U PAngry U PDisgust U PFear U PSurprise

STEP 2: $|PSad| = nSad$, $|PHappy| = nHappy$, $|PAngry| = nAngry$, $|PDisgust| = nDisgust$, $|PFear| = nFear$, $|PSurprise| = nSurprise$.

STEP 3: O= max(nSad , nHappy , nAngry , nDisgust , nFear , Surprise)

STEP 4: If O= nk , kϵ E,

STEP 5: If players j belongs to Pk , show
Positive otherwise Negative

IV. SCREEN SHOTS

Figure 1: Face Emotion Recognition

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Figure 2 : Face emotion recognition screen

V. CONCLUSION

Face Emotion Recognition, a competitive human computation game identifying the emotion. While the ESP Game and other GWAPs present using player collaborations for collecting useful information, the main contribution of this paper is to demonstrate the integration of competitive elements into human computation games. In the design of FER, we have two advantages over traditional human computation games: 1) FER provides a player-level cheating- proof mechanism which can alleviate coalition between players; 2) FER motivates players to contribute more interest in identifying the correct emotion of the face image. In our future work, we will explore more groups of players for playing the game. The recognition of emotion is also an important subject to learn and investigate.

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