

individuals.

SUMMARY OF THE INVENTION

[005a] According to a first aspect of the present invention, there is provided a computer-implemented method, comprising:

- detecting, via a facial recognition software application running on an electronic processor, an anatomical change of a user;

- calculating, via the facial recognition software application running on the electronic processor, a liveliness score based on a synchronization between the anatomical change and a feature displayed via the facial recognition software;

- calculating, via the facial recognition software application, a first score for the user based on the calculated liveliness score;

- determining that the first score is insufficient for authentication of the user; and

- combining the first score with a second score in response to determining that the first score is insufficient for authentication of the user, the second score being a normalized weighted score calculated based on social network connections of the user.

[005b] According to a second aspect of the present invention, there is provided a system, comprising:

- a processor; and

- a memory operably coupled to the processor and storing instructions executable by the processor to:

- detect, via a facial recognition software application, an anatomical change of a user;

- calculate, via the facial recognition software application, a liveliness score based on a synchronization between the anatomical change and a feature displayed via the facial recognition software;

- calculate, via the facial recognition software application, a first score for the user based on the calculated liveliness score; and

- combine the first score with a second score if the first score is determined insufficient for authentication of the user, the second score being a normalized weighted score calculated based on social network connections of the user.

[005c] According to a third aspect of the present invention, there is provided a non-transitory computer-readable medium storing processor-executable instructions to:

- detect, via a facial recognition software application, an anatomical change of a user;

- calculate, via the facial recognition software application, a liveliness score based on a synchronization between the anatomical change and a feature displayed via the facial recognition software;

calculate, via the facial recognition software application, a first score for the user based on the calculated liveliness score; and

combine the first score with a second score if the first score is determined insufficient for authentication of the user, the second score being a normalized weighted score calculated based on social network connections of the user.

[006] There is also disclosed a computer-implemented method for calculating a risk score for a user or entity associated with the user, the method comprising:

a. calculating, by a facial evaluation system operatively associated with an electronic processor, a liveliness check score in response to analysis of image data associated with at least one anatomical change associated with an interaction between the user and a facial recognition application;

b. calculating, by the facial evaluation system, a facial confirmation score by: i. generating a facial vector map based on image data associated with the user, ii. collecting data derived from at least one access device associated with the user or at least one identity input associated with the user, and iii. comparing at least a portion of the facial vector map data, the access device data, or the identity input data against at least a portion of image data stored in at least one database;

c. calculating, by the facial evaluation system, an authorization score for the user in response to the calculated liveliness check score and the calculated facial confirmation score;

d. calculating, by a risk evaluation system operatively associated with an electronic processor, a user score in response to at least a portion of profile data associated with at least one web-based or online environment associated with a user account of the user;

e. combining the calculated user score, the calculated liveliness check score, and the calculated facial confirmation score to generate an overall risk score for the user or the entity associated with the user;

f. determining if the authorization score is sufficient to authenticate the user;

g. one of combining or replacing the authorization score with the overall risk score if the authorization score is determined to be insufficient to authenticate the user; and

h. transmitting at least one of the authorization score, the combined authorization score and overall risk score, or the overall risk score.

[007] There is also disclosed a computer system for calculating a risk score for a user or entity associated with the user, the system comprising one or more electronic processors; and a non-transitory computer readable medium comprising instructions operable, when executed by said one or more electronic processors, to cause said system to perform:

i. calculating a liveliness check score in response to analysis of image data associated with at least one anatomical change associated with an interaction between the user and a facial recognition application;

CLAIMS

WHAT IS CLAIMED IS:

1. A computer-implemented method, comprising:
 - detecting, via a facial recognition software application running on an electronic processor, an anatomical change of a user;
 - calculating, via the facial recognition software application running on the electronic processor, a liveliness score based on a synchronization between the anatomical change and a feature displayed via the facial recognition software;
 - calculating, via the facial recognition software application, a first score for the user based on the calculated liveliness score;
 - determining that the first score is insufficient for authentication of the user; and
 - combining the first score with a second score in response to determining that the first score is insufficient for authentication of the user, the second score being a normalized weighted score calculated based on social network connections of the user.
2. The method of claim 1, wherein the anatomical change includes movement of at least one lip of the user, and the feature displayed via the facial recognition software is text displayed on a screen of a compute device.
3. The method of claim 1, wherein the anatomical change is associated with a recital of a phrase by the user.
4. The method of claim 1, wherein the anatomical change includes at least one of: an eye blink, an eye movement, a head movement, a lip movement, a hand movement, or an arm movement.
5. The method of claim 1, wherein the detecting the anatomical change is performed within a predefined time frame of a video.
6. The method of claim 1, wherein the detecting the anatomical change is performed within a predefined time frame of an animation segment.

7. A system, comprising:
a processor; and
a memory operably coupled to the processor and storing instructions executable by the processor to:
detect, via a facial recognition software application, an anatomical change of a user;
calculate, via the facial recognition software application, a liveliness score based on a synchronization between the anatomical change and a feature displayed via the facial recognition software;
calculate, via the facial recognition software application, a first score for the user based on the calculated liveliness score; and
combine the first score with a second score if the first score is determined insufficient for authentication of the user, the second score being a normalized weighted score calculated based on social network connections of the user.
8. The system of claim 7, wherein the anatomical change includes movement of at least one lip of the user, and the feature displayed via the facial recognition software is text displayed on a screen of a compute device.
9. The system of claim 7, wherein the anatomical change is associated with a recital of a phrase by the user.
10. The system of claim 7, wherein the anatomical change includes at least one of: an eye blink, an eye movement, a head movement, a lip movement, a hand movement, or an arm movement.
11. The system of claim 7, wherein the instructions to detect the anatomical change include instructions to detect the anatomical change within a predefined time frame of a video.
12. The system of claim 7, wherein the instructions to detect the anatomical change include instructions to detect the anatomical change within a predefined time frame of an animation segment.
13. A non-transitory computer-readable medium storing processor-executable instructions to:
detect, via a facial recognition software application, an anatomical change of a user;

calculate, via the facial recognition software application, a liveliness score based on a synchronization between the anatomical change and a feature displayed via the facial recognition software;

calculate, via the facial recognition software application, a first score for the user based on the calculated liveliness score; and

combine the first score with a second score if the first score is determined insufficient for authentication of the user, the second score being a normalized weighted score calculated based on social network connections of the user.

14. The computer-readable medium of claim 13, wherein the anatomical change includes movement of at least one lip of the user, and the feature displayed via the facial recognition software is text displayed on a screen of a compute device.

15. The computer-readable medium of claim 13, wherein the anatomical change is associated with a recital of a phrase by the user.

16. The computer-readable medium of claim 13, wherein the anatomical change includes at least one of: an eye blink, an eye movement, a head movement, a lip movement, a hand movement, or an arm movement.

17. The computer-readable medium of claim 13, wherein the instructions to detect the anatomical change include instructions to detect the anatomical change within a predefined time frame of a video.

18. The computer-readable medium of claim 13, wherein the instructions to detect the anatomical change include instructions to detect the anatomical change within a predefined time frame of an animation segment.