

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] ~~In one aspect, there is provided~~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] ~~In another aspect, there is provided~~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 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 liveness 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 liveness 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 liveness 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.~~

~~2. The method of claim 1, further comprising collecting the image data associated with the user with a camera enabled and network connectable access device.~~

~~3. The method of claim 1, further comprising calculating at least one of the liveness check score or the facial confirmation score in response to a user score calculated by a risk evaluation~~

system.

4. The method of claim 1, further comprising factoring an opt-out action by the user into the authorization score.

5. The method of claim 1, wherein calculating the liveness check score further comprises recording at least one facial feature of the user in response to recital of a phrase by the user.

6. The method of claim 1, further comprising calculating the liveness check score in association with comparing at least one anatomical feature of the user shown in the image data to at least a portion of an expected set of anatomical features associated with the user.

7. The method of claim 6, wherein the anatomical feature includes at least one of eye blinking, eye movement, head motion, lip movement, arm gesture, hand gesture, or a combination thereof.

8. The method of claim 1, further comprising analyzing at least a portion of the identity input data to verify the user against a category of known users.

9. The method of claim 1, wherein the web-based or online environment comprises a social network or professional network.

10. The method of claim 1, further comprising calculating a connections score in response to at least one connection formed between a first user account and at least a second user account through the web-based or online environment.

11. The method of claim 1, further comprising calculating an affinity score in response to an overlap between at least a portion of the profile data of a first user account and at least a portion of profile data associated with at least a second user account.

12. The method of claim 1, wherein calculating the user score further comprises processing at least one activity feed of at least the first user account by calculating a frequency of posting.

13. The method of claim 12, wherein processing the activity feed includes identifying a baseline posting frequency and a burst usage pattern for at least the first user account.

~~14. The method of claim 1, further comprising checking an identity of one or more user accounts making a post to distinguish between a post by a first user account and a post by at least a second user account connected to the first user account.~~

~~15. The method of claim 1, further comprising collecting metadata associated with at least one post including a location accessed by the user account.~~

~~16. The method of claim 15, further comprising using the collected location metadata to track one or more frequently traveled locations of the user account.~~

~~17. The method of claim 1, wherein calculating the user score further comprises comparing the data of the user account to at least one reference profile model associated with at least one web-based or online environment.~~

~~18. 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;~~

~~ii. calculating a facial confirmation score by:~~

~~1) generating a facial vector map based on image data associated with the user,~~

~~2) collecting data derived from at least one access device associated with the user or at least one identity input associated with the user, and~~

~~3) 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;~~

~~iii. calculating an authorization score for the user in response to the calculated liveliness check score and the calculated facial confirmation score;~~

~~iv. calculating 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;~~

~~v. 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;~~

~~vi. determining whether the authorization score is sufficient to authenticate the user; vii. 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~~

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

~~19. The system of claim 18, wherein the web-based or online environment comprises a social network or professional network.~~

~~20. A non-transitory computer-readable medium including instructions for directing an electronic processor of a computer system to perform a method for calculating a risk score for a user or entity associated with the user, the medium comprising:~~

~~a) instructions for 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;~~

~~b) instructions for calculating 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) instructions for calculating an authorization score for the user in response to the calculated liveliness check score and the calculated facial confirmation score,~~

~~d) instructions for calculating 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) instructions for 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) instructions for determining whether the authorization score is sufficient to authenticate the user;~~

~~g) instructions for 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) instructions for transmitting at least one of the authorization score, the combined authorization score and overall risk score, or the overall risk score.~~

~~21. The method of claim 1, wherein the interaction between the user and the facial recognition application comprises the user reading text displayed on a screen via the facial recognition application.~~

~~22. The method of claim 1, wherein the liveness check score is based on a degree of synchronization of the at least one anatomical change with a feature of the facial recognition application during the interaction.~~

~~23. The system of claim 18, wherein the comparing includes: comparing the at least a portion of the facial vector map data against the at least a portion of image data stored in the at least one database; comparing the access device data against associated data stored in the at least one database; and comparing the identity input data against associated data stored in the at least one database.~~

~~24. The method of claim 21, wherein the text includes randomly generated text.~~

~~25. The method of claim 1, wherein the interaction between the user and the facial recognition application comprises anatomically tracking an animation of an electronic device screen.~~

~~26. The method of claim 1, wherein the interaction between the user and the facial recognition application comprises performing an action that results in an anatomical change.~~

~~27. The method of claim 1, wherein the interaction between the user and the facial recognition application comprises user electronic device interaction via the facial recognition application.~~

~~28. The method of claim 1, wherein the liveness check score is based on a degree of~~

~~synchronization of a user electronic device interaction with a feature of the facial recognition application during the interaction.~~

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.