

CLAIMS

1. A computer-implemented method for analyzing a plurality of digital interactions, the method comprising acts of:
 - (A) identifying a plurality of values of an attribute, each value of the plurality of values corresponding respectively to a digital interaction of the plurality of digital interactions;
 - (B) dividing the plurality of values into a plurality of buckets;
 - (C) for at least one bucket of the plurality of buckets, determining a count of values from the plurality of values that fall within the at least one bucket;
 - (D) comparing the count of values from the plurality of values that fall within the at least one bucket against historical information regarding the attribute; and
 - (E) determining whether the attribute is anomalous based at least in part on a result of the act (D).
2. The method of claim 1, wherein:
 - each value of the plurality of values comprises a time measurement between a first point and a second point in the corresponding digital interaction; and
 - each bucket of the plurality of buckets comprises a range of time measurements.
3. The method of claim 1, wherein:
 - the act (B) of dividing the plurality of values into a plurality of buckets comprises applying a hash-modding operation to each value of the plurality of values; and
 - each bucket of the plurality of buckets corresponds to a residue of the hash-modding operation.
4. The method of claim 3, further comprising acts of:
 - (F) recording a plurality of observations with respect to the attribute, each observation of the plurality of observations being recorded from a corresponding digital interaction of the plurality of digital interactions; and
 - (G) deriving each value of the plurality of values based on the observation recorded from the corresponding digital interaction.

5. The method of claim 1, wherein the historical information regarding the attribute comprises an expected count for the at least one bucket, and wherein the act (D) comprises:
comparing the count of values from the plurality of values that fall within the at least one bucket against the expected count for the at least one bucket.
6. The method of claim 5, wherein the act (E) comprises:
determining if the count of values from the plurality of values that fall within the at least one bucket exceeds the expected count for the at least one bucket by at least a selected threshold amount, wherein the attribute is determined to be anomalous in response to determining that the count of values from the plurality of values that fall within the at least one bucket exceeds the expected count for the at least one bucket by at least the selected threshold amount.
7. The method of claim 5, wherein:
the plurality of digital interactions comprises a plurality of first digital interactions observed from a first time period;
the plurality of values comprises a plurality of first values of the attribute;
dividing a plurality of second values of the attribute into the plurality of buckets, each value of the plurality of second values corresponding respectively to a digital interaction of a plurality of second digital interactions;
the expected count for the at least one bucket comprises a count of values from the plurality of second values that fall within the at least one bucket;
the plurality of second digital interactions were observed from a second time period, the second time period having a same length as the first time period; and
the first time period occurs after the second time period.
8. The method of claim 5, wherein the plurality of buckets comprises a plurality of first buckets, and wherein the method further comprises:
determining if the count of values from the plurality of values that fall within the at least one bucket exceeds the expected count for the at least one bucket by at least a selected threshold amount; and

in response to determining that the count of values that fall within the at least one bucket exceeds the expected count for the at least one bucket by at least the selected threshold amount, dividing the plurality of values into a plurality of second buckets, wherein there are more second buckets than first buckets.

9. The method of claim 1, wherein the historical information regarding the attribute comprises an expected ratio for the at least one bucket, and wherein the act (D) comprises:

determining a ratio between the count of values from the plurality of values that fall within the at least one bucket, and a total count of values from the plurality of values; and
comparing the ratio against the expected ratio for the at least one bucket.

10. The method of claim 1, further comprising:

selecting a plurality of attributes, the plurality of attributes comprising the attribute, wherein acts (A)-(E) are performed for each attribute of the plurality of attributes; and
storing, in a profile, information regarding one or more attributes that are determined to be anomalous.

11. A computer-implemented method for analyzing a digital interaction, the method comprising acts of:

identifying a plurality of attributes from a profile;
for each attribute of the plurality of attributes, determining whether the digital interaction matches the profile with respect to the attribute, comprising:
 identifying, from the profile, at least one bucket of possible values of the attribute, the at least one bucket being indicative of anomalous behavior;
 identifying, from the digital interaction, a value of the attribute; and
 determining whether the value identified from the digital interaction falls into the at least one bucket, wherein the digital interaction is determined to match the profile with respect to the attribute if it is determined that the value identified from the digital interaction falls into the at least one bucket; and
determining a penalty score based at least in part on a count of attributes with respect to which the digital interaction matches the profile.

12. The method of claim 11, wherein, for at least one attribute:
the value identified from the digital interaction comprises a time measurement between a first point and a second point in the digital interaction; and
the at least one bucket comprises a range of time measurements.
13. The method of claim 11, wherein, for at least one attribute:
the act of determining whether the value identified from the digital interaction falls into the at least one bucket comprises applying a hash-modding operation to the value identified from the digital interaction; and
the at least one bucket corresponds to a residue of the hash-modding operation.
14. The method of claim 13, wherein the act of identifying, from the digital interaction, a value of the attribute comprises:
recording, from the digital interaction, an observation with respect to the attribute; and
deriving the value of the attribute based on the observation recorded from the digital interaction.
15. The method of claim 14, wherein the act of deriving the value of the attribute based on the observation recorded from the digital interaction comprises:
discarding at least one first portion of the observation recorded from the digital interaction, while retaining at least one second portion of the observation recorded from the digital interaction, the at least one first portion being less relevant for a certain type of security risk than the at least one second portion.
16. The method of claim 11, wherein the penalty score is determined based at least in part on a ratio between the count of attributes with respect to which the digital interaction matches the profile, and a total count of the plurality of attributes identified from the profile.
17. The method of claim 11, wherein the digital interaction is a first digital interaction, and wherein the method further comprises:

identifying a plurality of values of an attribute with respect to which the first digital interaction matches the profile, each value of the plurality of values corresponding respectively to a second digital interaction of a plurality of second digital interactions;

dividing the plurality of values into a plurality of buckets, the plurality of buckets comprising the at least one bucket into which the value of the attribute identified from the digital interaction falls;

determining a count of values from the plurality of values that fall within the at least one bucket; and

determining an extent to which the count of values from the plurality of values that fall within the at least one bucket deviates from an expected count for the at least one bucket, wherein the penalty score is determined based at least in part on the extent to which the count of values from the plurality of values that fall within the at least one bucket deviates from the expected count for the at least one bucket.

18. A system comprising at least one processor and at least one computer-readable storage medium having stored thereon instructions which, when executed, program the at least one processor to perform the method recited in any of claims 1-17.

19. At least one computer-readable storage medium having stored thereon instructions which, when executed, program at least one processor to perform the method recited in any of claims 1-17.