

ABSTRACT**METHOD AND SYSTEM FOR CALCULATING AFFINITY BETWEEN
ENTITIES USING ELECTRICAL CIRCUIT ANALOGY**

Methods and systems for measuring relatedness, known as net affinity, between any two arbitrary nodes, known as entities, in a graph is provided. According to one embodiment, unprocessed data about entities is collected from various data sources. The unprocessed data is transformed to a graph with entities as nodes and corresponding direct affinities between them as edges. Depending on relationship between corresponding nodes, the corresponding edges are at least one of non-directed, directed and temporal. The graph is simulated as an electrical circuit with non-directed edges as a conventional resistor. The directed edges are simulated as at least one of a conventional resistor coupled with a forward-biased ideal diode in direction of the directed edges. The temporal edges are simulated with a time-delay circuit involving, at least in part, a capacitor. Further, relatedness between all pairs of nodes is calculated in accordance with the rules of electrical circuit topology.

FIG. 2