Supplemental Materials for
Segue: Overviewing Evolution Patterns of Egocentric Networks by Interactive Construction of Spatial Layouts

Contents

Link to a Video Demonstrating the Enron Use Case in Section 7

Latest Video

Exploring the Enron Dataset using Segue:
https://youtu.be/WD7v0_RTSZo

Older Videos

Introducing the Segue User Interface
https://youtu.be/diRc3IjPxRI

Exploring the Crunchbase Coinvestment Network using Segue
https://youtu.be/icWG0aPiMYw

Exploring the Enron Dataset using Segue
https://youtu.be/51rNkiXwQHM

Pseudocode for Transforming Time-Series into Interval Events Without Overlapping

INPUT:
(1) A range of slope R: (minSlope, maxSlope) specified by users,
(2) An event category name eventCategory specified by users,
(3) A list of time series T_i: {t_j}, each representing an ego-network
, where T_i represents a time series with index i,
t_j represents a value at time step j in a time series

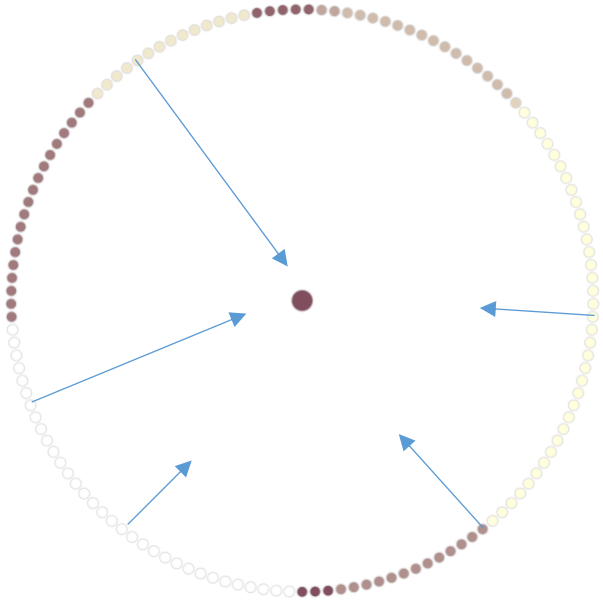
OUTPUT:
A list of interval events I_k: ($category_k$, $start_k$, end_k)
, where $category_k$ represents the event category to which the I_k belongs
$start_k$ represents the start time of I_k,
end_k represents the end time of I_k

```
FOR each time series Ti
  FOR startTime = earliest time point of Ti to latest time point of Ti
    SET currentLargestEndTime to NULL
    FOR endTime = startTime + 1 to latest time point of Ti
      COMPUTE regression slope of Ti between startTime and endTime
      IF regression slope is within the specified range R THEN
        SET currentLargestEndTime to endTime
      ENDIF
      IF endTime = latest time point of Ti and currentLargestEndTime != NULL
        STORE interval event (startk, endk, eventCategory)
        SET startTime to endTime
        SET endTime to startTime + 1
      ENDIF
    ENDFOR
  ENDFOR
ENDFOR
```

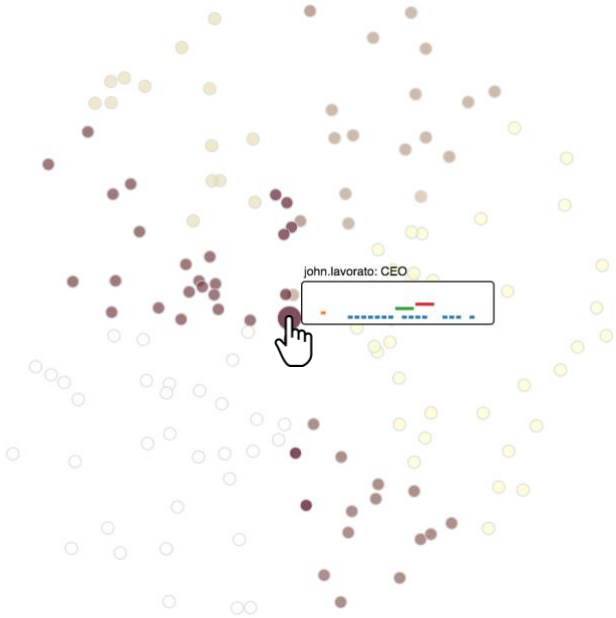
Illustrations of the Steps in Creating the Radial Layout in Section 4.2.4

As described in Section 4.2.4, as analysts double-click on a node, a radial layout is created. The selected node becomes the focal node in the radial layout. The following illustrations depict the steps involved in creating a radial layout when users double-click on the node that represents John Lavorato.

Step 1: Each node is a dynamic ego-network. The center node is John Lavorato's dynamic ego-network and the other nodes are placed at equal distance along the circumference of a circle.



Step 2: the surrounding nodes move towards the center node based on their distance from John Lavorato's dynamic ego-network.



Step 3: The dynamic ego-networks with shorter distance from John Lavorato's dynamic ego-networks are placed closer to the center node.

Images of Previous Prototypes

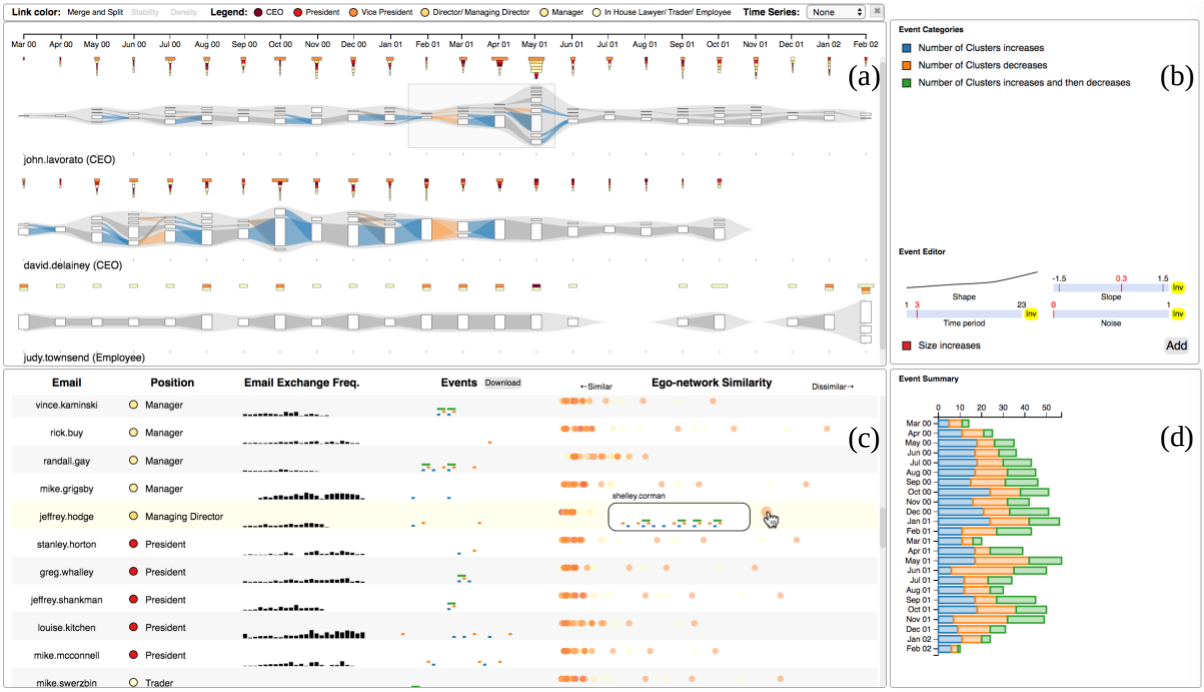


Figure 1. The first prototype of Segue. (a) The ego-network view (b) The event editor (c) The table view (d) The event summary view

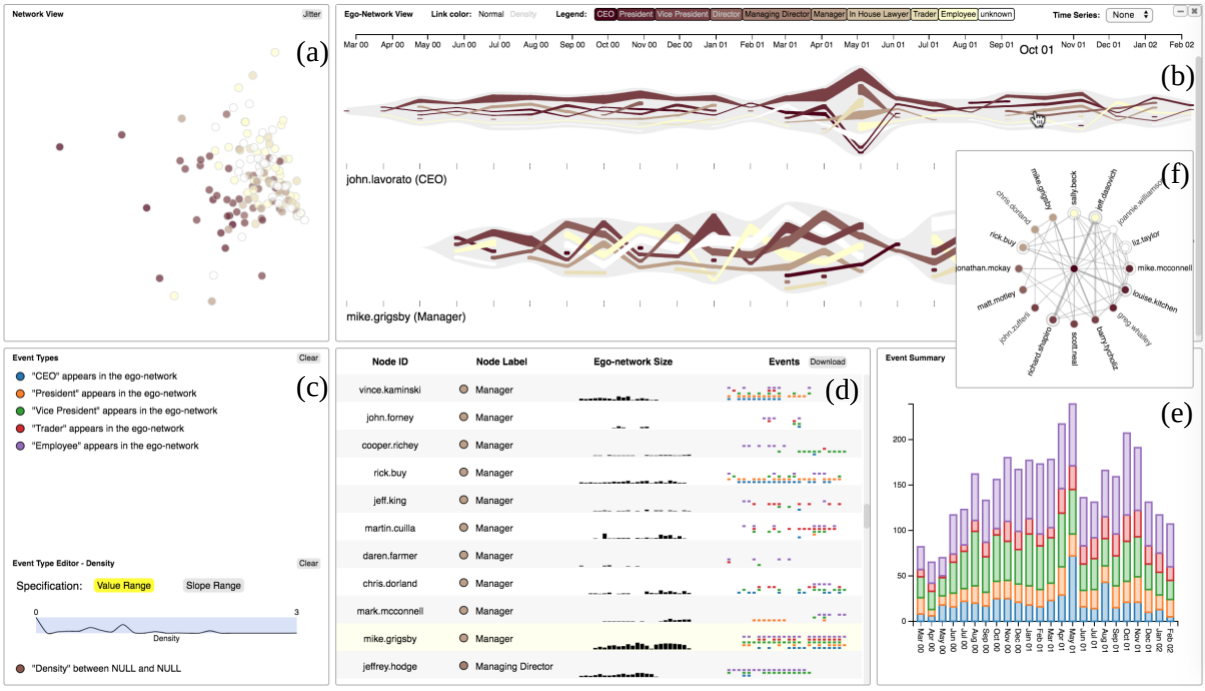


Figure 2. The second prototype of Segue. (a) The network view (b) The ego-network view (c) The event editor (d) The table view (e) The event summary view (f) A window showing the ego-network of Lavorato in Oct 01

Interview Questions for the Expert Review in Section 4

Q1	Does the tool help you explore a collection of ego-networks based on the questions you have about the data?
Q2	Do interactive event extraction and the pixel display help you explore your hypothesis about the similarities in the evolution patterns of a group of ego-networks and the differences in evolution patterns of different groups? How?
Q3	Does the ego-network similarity column help you understand in what way two ego-networks are similar and why an ego-network is an outlier? How?
Q4	Does the event summary view help you understand population level trends of the whole collection of ego-networks? How?
Q5	Please let us know if you have any further feedback.