## NetworkCube

**NetworkCube is a platform for network visualization, with a focus on dynamic networks.**

- It is a JavaScript library that provides:
  - data import,
  - a dynamic graph API,
  - network visualizations and components (see right),
  - messages that synchronize views after user interaction,
  - general functionalities, such as history, brushing and linking, search, coloring.
- NetworkCube runs locally in a browser; user data is stored solely in the browser's local storage.
- Messages keep views coordinated across frames, tabs, and even windows.

## Motivation

- How to provide domain scientists (e.g., researchers in neuroscience, historians) with easy and fast access to visualizations?
- We prototyped two online platforms for visualizing dynamic multivariate networks.
- From our experience in creating those platforms and discussing with the involved domain experts, we learned:
  1. Data wrangling is different per application domain, but visualizations are similar across domains.
  2. Researchers tolerate bugs because few sessions on a prototype lead to discoveries and save hours of analytical work.
  3. Most domain experts are novice visualization users. Standard visualizations, e.g., node-link diagrams, can be instrumental to teach more novel ones via multiple coordinated views.
  4. Data have high value and it is often not desirable to upload them onto a server.
  5. Current software for network visualization, especially from research [1-3], are sometimes domain-dependent or hardly available to practitioners due to lack integration into analysts’ workflows.

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## Visualizations

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## Usage

1. Format data into node and edge tables. That is the responsibility of the user or his platform (e.g., The Vistorian, ConnectoScope).
2. 
3. `networkcube.importData(dataObject);`
4. `networkcube.createVisualizationIFrame(visualizationName, parentElement, sessionName, dataName);`

## References


## Notes

3. ConnectoScope is a visualization platform for brain connectivity in neuroscience. ConnectoScope allows exploring fMRI data from a neuroscience standard format. Brain connectivity networks are automatically extracted and visualized using a 3D glass brain visualization, adjacency matrices, and LinkWave [4]. Views are connected by brushing-hinging, and colored selections.

## Domain Platforms

**The Vistorian** is a visualization platform for historians. Users can map their manually assembled data tables to a network structure, by defining columns for source and target node, edge type, and time; then visualizing their data using node-link diagrams, adjacency matrices, and a dynamic ego-network visualization.

**ConnectoScope** is a visualization platform for brain connectivity in neuroscience. ConnectoScope allows exploring fMRI data from a neuroscience standard format. Brain connectivity networks are automatically extracted and visualized using a 3D glass brain visualization, adjacency matrices, and LinkWave [4]. Views are connected by brushing-hinging, and colored selections.

## Visualizations

- NetworkCube currently supports 8 visualizations for dynamic networks, connected through brushing and linking. All provide time navigation support.

## References