3.1 NWB Algorithms and Tools

Preprocessing

- Extract Top Nodes
- Extract Nodes Above or Below Value
- Remove Node Attributes
- Delete High Degree Nodes
- Delete Random Nodes
- Delete Isolates
- Extract Top Edges
- Extract Edges Above or Below Value
- Remove Edge Attributes
- Remove Self Loops
- Trim by Degree
- MST-Pathfinder Network Scaling
- Fast Pathfinder Network Scaling
- Pathfinder Network Scaling
- Snowball Sampling (N nodes)
- Node Sampling
- Edge Sampling
- Symmetrize
- Dichotomize
- Multipartite Joining
- Normalize Text
- Slice Table by Time

Modeling

- Random Graph
- Watts-Strogatz Small World
- Barabási-Albert Scale-Free
- CAN
- Chord
- Hypergrid
- PRU
- TARL
- Discrete Network Dynamics
- Evolving Network (Weighted)

Analysis Edit

- Network Analysis Toolkit

Unweighted & Undirected

- Node Degree
- Node Distribution
- Watts Strogatz Clustering Coefficient
- Watts Strogatz Clustering Coefficient Over k
- Diameter
- Average Shortest Path
- Shortest Path Distribution
- Node Betweenness Centrality
- Global Connected Components
- HITS
- Weak Component Clustering
- Blondel Community Detection
- MST-Pathfinder Network Scaling
- Extract K-Core
- Annotate K-Coreness

Weighted & Undirected

- Weight Distribution
- Weight versus End-point Degree
- Degree & Strength
- Strength versus Degree
- Strength Distribution
- Nearest Neighbor Degree
- Clustering Coefficient
- Randomization
- Can
- Chord
- k-Random Walk
- Random Breadth-First
- Burst Detection

**Unweighted & Directed**

- Node Indegree
- Node Outdegree
- Outdegree Distribution
- k-Nearest Neighbor
- Single Node In-Out Degree Correlations
- PageRank
- HITS
- Dyad Reciprocity
- Arc Reciprocity
- Adjacency Transitivity
- Weak Component Clustering
- Blondel Community Detection
- Extract and Annotate Attractors
- Extract K-Core
- Annotate K-Coreness

**Weighted and Directed**

- HITS
- Weighted PageRank
- Fast Pathfinder Network Scaling
- Blondel Community Detection

**Visualization Edit**

- GUESS
- GnuPlot
- DrL (VxOrd)
- Specified (prefuse beta)
- Circular (JUNG)
- Radial Tree (prefuse alpha)
- Radial Tree with Annotations (prefuse beta)
- Tree Map (prefuse beta)
- Tree View (prefuse beta)
- Balloon Graph (prefuse alpha)
- Force Directed with Annotation (prefuse beta)
- Kamada-Kawai (JUNG)
- Fruchterman-Reingold (JUNG)
- Fruchterman-Reingold with Annotation (prefuse beta)
- Spring (JUNG)
- Small World (prefuse alpha)
- Parallel Coordinates (demo)
- LaNet
- Circular Hierarchy

**Scientometrics**

- Remove ISI Duplicate Records
- Remove Rows With Multitudinous Fields
- Detect Duplicate Nodes
- Update Network by Merging Nodes
- Extract Directed Network
- Extract Paper Citation Network
- Extract Author Paper Network
- Extract Co-Occurrence Network
- Extract Word Co-Occurrence Network
- Extract Co-Author Network
- Extract Reference Co-Occurrence (Bibliographic Coupling) Network
- Extract Co-Citation Similarity Network