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