

Appendix B

The Information Filtering Application

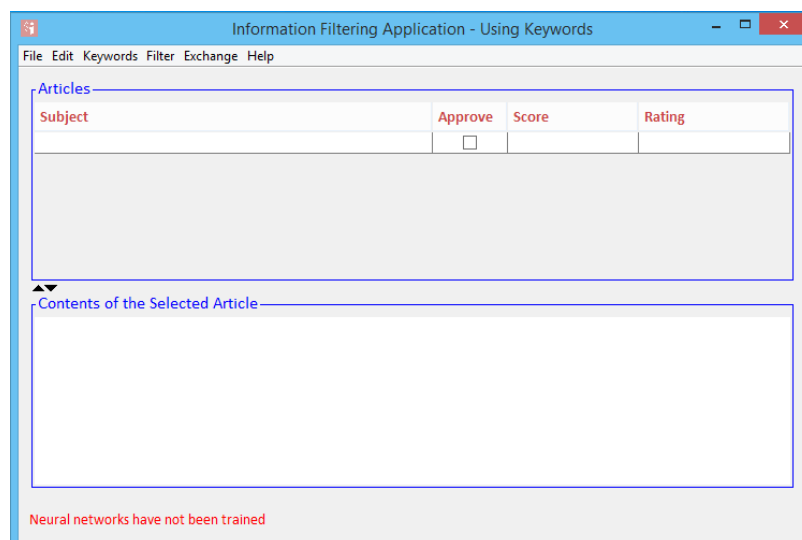
This appendix introduces an information filtering application developed by this thesis's author as a demonstration for all concepts, designs and algorithms we have discussed in the previous chapters. Key functions of the application will mainly be explained with the purpose of providing manual instructions on how to use the application.

The application was developed in Java. Source code and runnable `.jar` app can be downloaded from the following url:

<https://github.com/TranXuanHoang/InformationFilteringSystem>

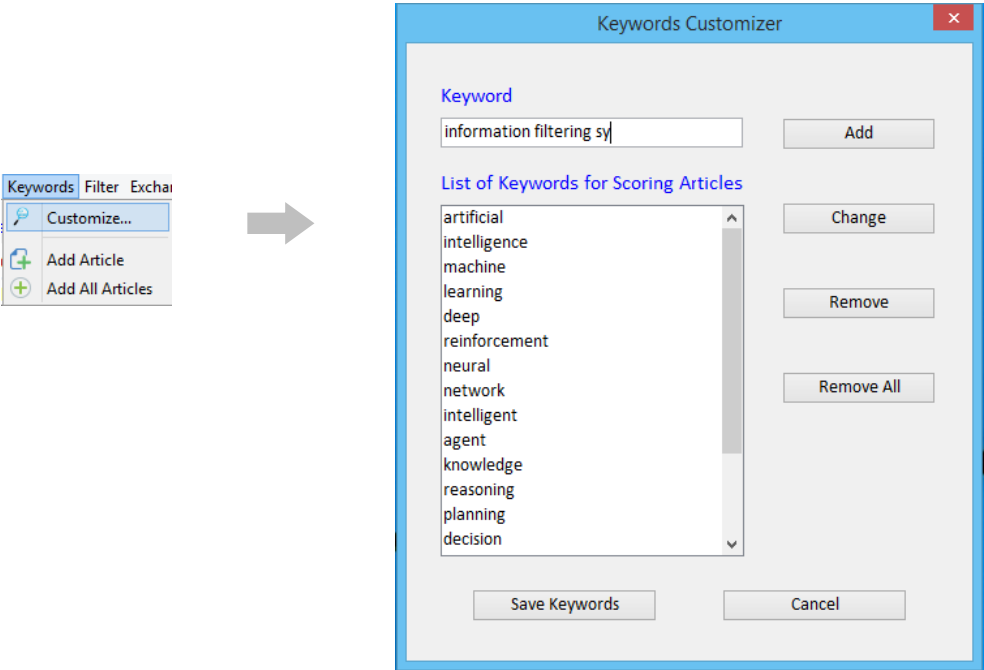
Source code: in directory `src` from the above url
Runnable file: in directory `app` from the above url

Starting Window: when the application is started, its main graphical user interface (GUI) is as the following figure. The top half of the GUI is a table containing information

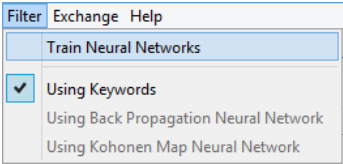


of articles that will be loaded from personal computer or downloaded from the Internet. **Subject** column shows articles' subjects, **Approve** column contains check boxes so that user can tick on to indicate which articles are selected to be sent to other user. **Score** column is the interestingness of articles and is automatically computed by the app. **Rating** column allows user to score articles' interestingness again if the app's returned `scores` is not correct.

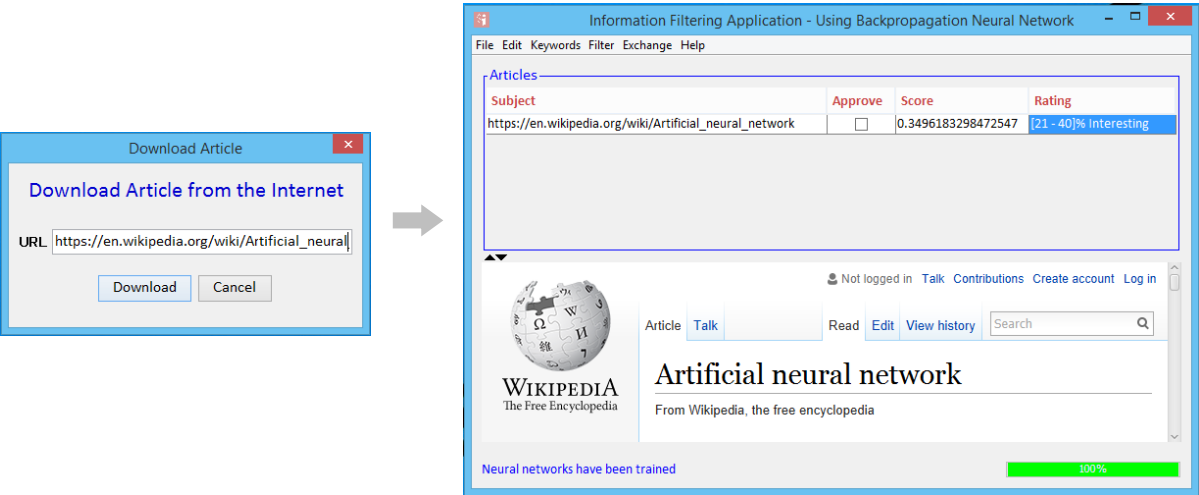
Add, Change, Remove Keywords: select **Keywords > Customize...**, then a dialog box will appear and keywords can be added, changed or removed. Hit **Save Keywords** button to save any change.



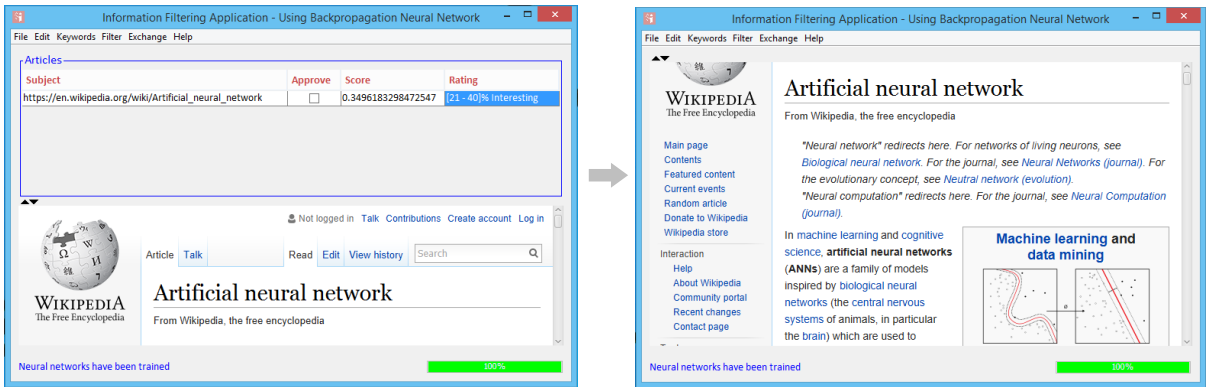
Train Agent’s Neural Networks: first place training data file `infofilter.dat` in the same directory where the app was started, then select **Filter > Train Neural Networks**



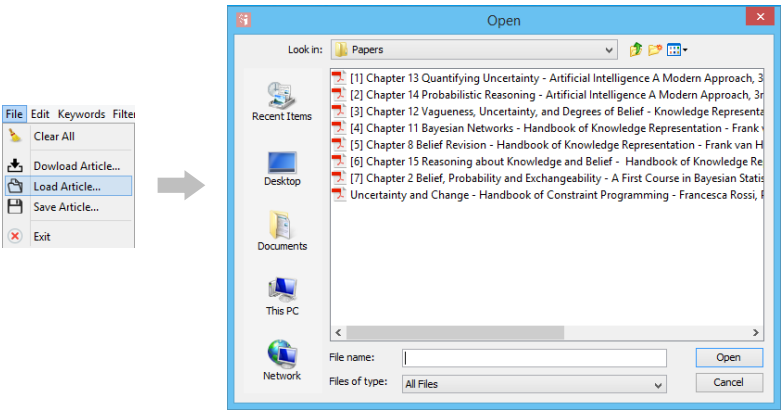
Download Articles: select **File > Download Article...**, enter URL of the article to be downloaded, then hit **Download** button.



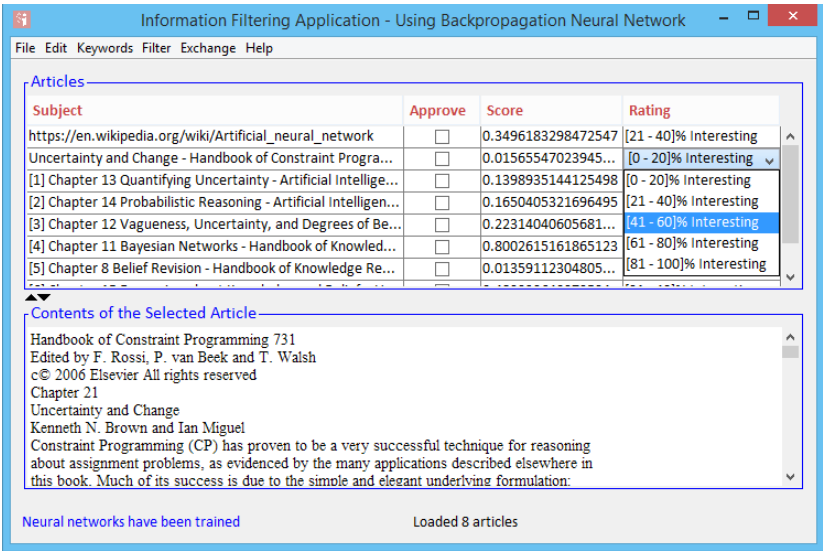
Enlarge Article's Content Viewing Area: click on the up/down arrow button in the middle left of the GUI to enlarge the area of viewing article's content.



Load Articles from Personal Computer: select File > Load Article..., then on the appearing file chooser dialog select an article file or hold Shift key and select multiple files, finally click Open button or hit Enter on the keyboard.



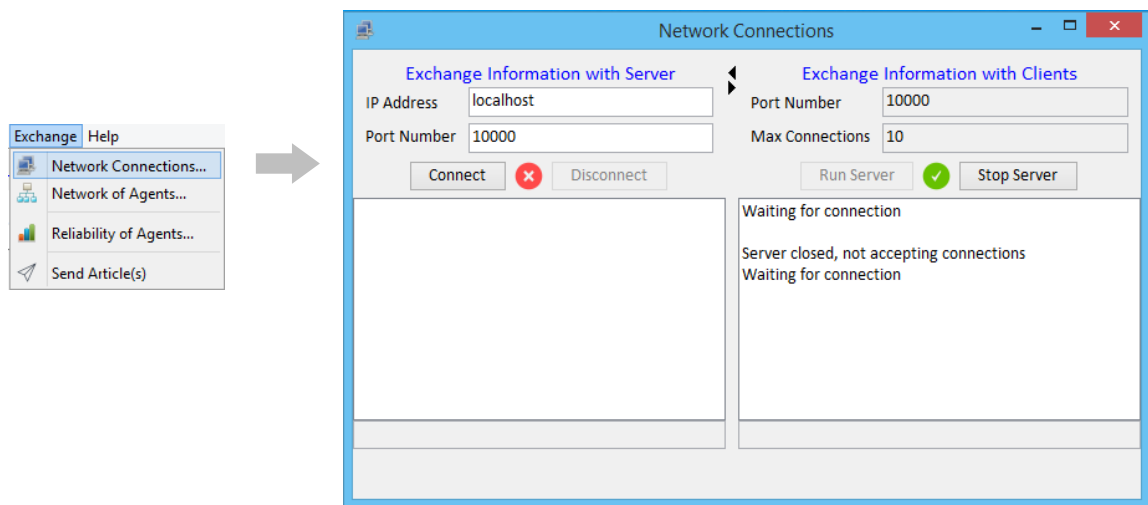
Rate Articles Again: if an article downloaded from the Internet or loaded from PC are assigned wrong Rating value, just click on the value and a drop down list will appear to allow selecting other appropriate rating.



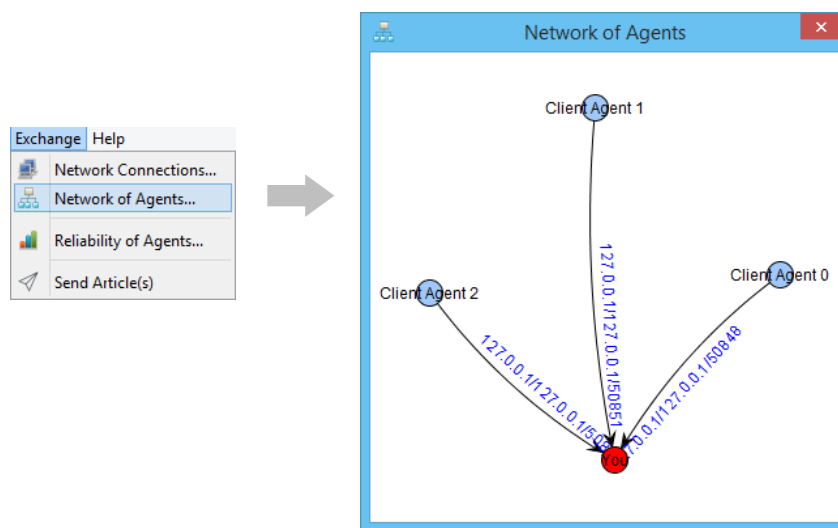
Set up Network Connections: select **Exchange > Network Connections...** to open a dialog.

- If the app plays the role of receiving articles from other apps (other agents), it is a server and on the right hand side of the dialog we just need to specify **Port Number** and **Max Connections** then click **Run Server** button.
- If the app plays the role of sending articles to an other app (lower level agent), it is a client. On the left hand side of the dialog box, specify the **IP Address** and **Port Number** of the server to which it will connect and send articles, then click **Connect** button.

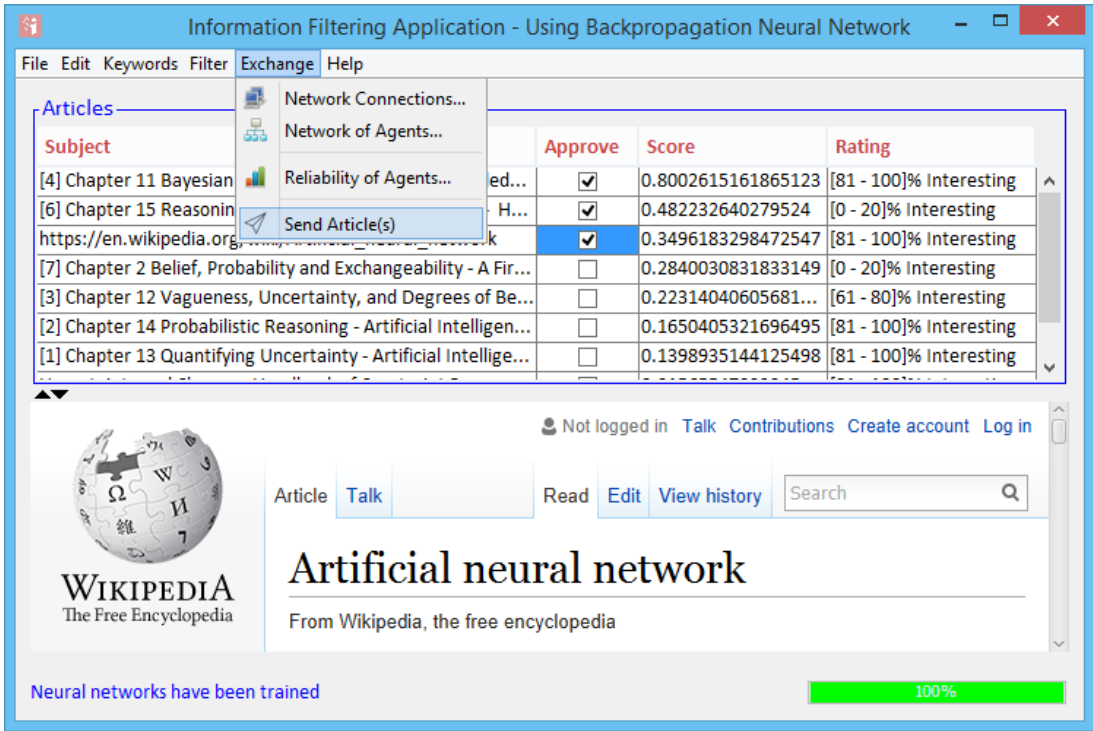
Right below the buttons, there are two text areas for tracing connection status and two text fields for sending messages with app to which this app are connecting. These two text fields are just active when connection is successful.



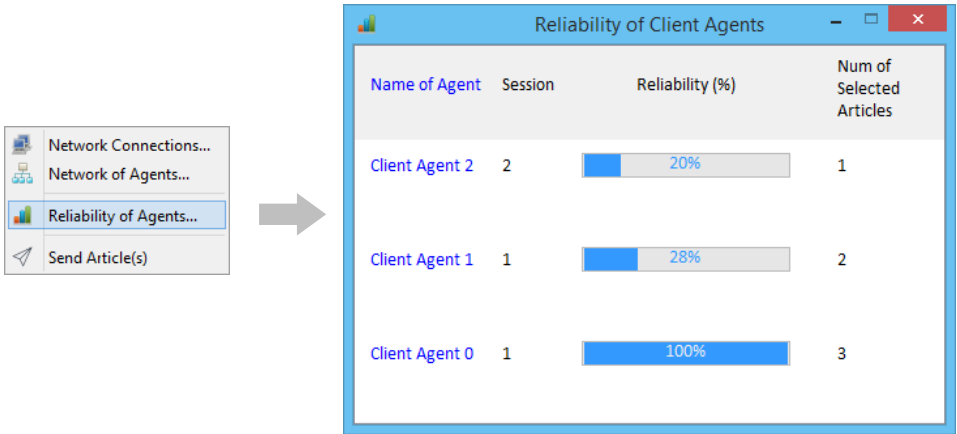
Show All Client Apps: to visualize connections from other apps (from other agents) select **Exchange > Network of Agents...**. A window will appear with a directed graph consisting of nodes representing apps (agents) and edges representing connection directions. Labels of edges are IP addresses and port numbers of client apps.



Send Articles: after connecting to another app (server agent), articles can be sent by first clicking on the check boxes in the **Approve** column that correspond to articles which has high score, then selecting **Exchange > Send Article(s)**.



Check Reliability of Agents: to show reliability of all other apps (client agents) that are connecting to your app directly, select **Exchange > Reliability of Agents...** and a windows will appear with information relating to reliability of these client agents.



And More...: the app has other utility functions such as: just double-clicking on the **Subject** of an article will cause the operating system starts its default application to open the article; or the app can read and score the interestingness of articles in 5 file types, namely **.txt**, **.docx**, **.pptx**, **.pdf** and **.html**.