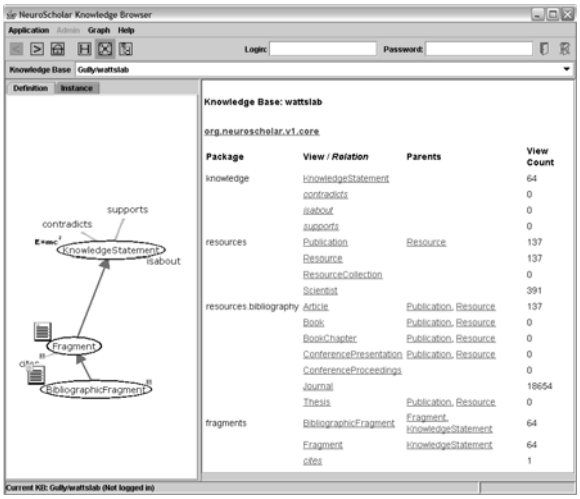
Neuroscience 2006, Atlanta, Georgia
Poster and demonstration: Tuesday October 17th 2006, 1.30 pm – 4.30 pm

The NeuroScholar Knowledge Management Platform

G Burns
Information Sciences Institute, USC, LA, CA

At present, researchers have access to more scientific knowledge than ever before in the form of online research papers. We present prototype knowledge management software for neuroscientific information that is open-source, multi-platform, freely downloadable and based on a general design for use and development within the community. The software is called 'NeuroScholar' and is available from http://www.neuroscholar.org/.

We will present the platform as a whole as well as two functional applications: the NeuroScholar browser and the NeuARt II neuroanatomical atlas viewing system.



(1) The Knowledge Management Platform: This is a methodology for building knowledge bases that processes an object-oriented design model and specifications to generate a database and user interface with a matching schema. Within this system, complex composite objects may be represented as interlinked / interrelated nodes in a graph. The platform's modular design permits individual systems to be combined.

(2) The NeuroScholar Knowledge Management Browser: Configured to appear like a web-browser, this application provides the user with the capability to construct small-scale knowledge bases derived from the published literature or from local data files (as an Electronic Laboratory Notebook, or 'ELN'). Features of this system include a browsing history function, graph- (and tree-) based interfaces and web-service publishing capabilities. Ongoing research based on this platform involves the use of Natural Language Processing to tag and parse users' local PDF files so that they may be uploaded into the system.

(3) The NeuART II system: Modeled on a neuroanatomical atlas, this system allows users to store and query drawings that have been placed onto atlas plates. Functionality includes pan, zoom, position measurement and volumetric annotations superimposed over maps of neuroanatomical data. Elsevier has provide permission to incorporate data from Larry Swanson's 2nd and 3rd edition atlases, and the Paxinos atlas 5th edition under the condition that the user must own a licensed copy of the commercial CD. This system was

constructed for use within the Swanson laboratory to view highly detailed maps of neuroanatomical connectivity (see Figure above).