

## BeeSpace: An Interactive System for Functional Analysis

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BeeSpace is a National Science Foundation-funded project whose five-year mission is to develop an open bioinformatics resource supporting functional analysis of social behavior, leveraging the honey bee research community. We have built a software system that can support automatic curation of genome databases, using text mining of biomedical literature. We will briefly discuss the features of BeeSpace Navigator v4.0, and outline our proposed technique for integrating Navigator functionality within the GMOD framework.

BeeSpace Navigator was developed using open source software and open frameworks. It is deployed as a web application. The fourth major version (v4.0) has a new AJAX user interface, built on the open source Ext JS toolkit. It is currently under development, with anticipated late-2008 release. The new metadata rich drag-and-drop AJAX web interface has been redesigned from the ground up to enable the biologist to search and sort vast quantities of relevant documents quickly and efficiently using a familiar format with powerful controls.

In addition to the new user interface, we will be publishing key BeeSpace functionality as web services, which can be easily integrated into GMOD or other software tools, similar to the way in which YouTube videos are integrated into web pages – via URL. Through these services, researchers will be able to execute searches on biology document collections, cluster search results by concept and quickly navigate through result sets of semantically related documents (called “spaces”) without leaving familiar software tools.

The BeeSpace system enables users to create their own collections, which are semantically indexed into concept spaces. Community annotation is supported by enabling users to share spaces and concepts with others. This collaborative feature produces high efficiency for teams of researchers working toward similar goals by allowing them to easily and powerfully share their clustered search results.

BeeSpace source code is distributed under the GNU Public License v2.