

## Knowledge Discovery/A Collaborative Approach, an Innovative Solution

### Abstract

Collaboration between Medical Informatics and Healthcare Systems (MIHCS) at NASA/Johnson Space Center (JSC) and the Texas Medical Center (TMC) Library was established to investigate technologies for facilitating knowledge discovery across multiple life sciences research disciplines in multiple repositories. After reviewing 14 potential Enterprise Search System (ESS) solutions, Collexis was determined to best meet the expressed needs. A three month pilot evaluation of Collexis produced positive reports from multiple scientists across 12 research disciplines. The joint venture and a pilot-phased approach achieved the desired results without the high cost of purchasing software, hardware or additional resources to conduct the task.

### Supplement

Medical research is highly compartmentalized by discipline, e.g. cardiology, immunology, neurology. The medical research community at large, as well as at JSC, recognizes the need for cross-referencing relevant information to generate best evidence. Cross-discipline collaboration at JSC is specifically required to close knowledge gaps affecting space exploration. To facilitate knowledge discovery across these communities, MIHCS combined expertise with the TMC library and found Collexis to best fit the needs of our researchers including:

- Supporting lengthy natural language queries
- Retrieving relevant content by semantically searching across multiple repositories using a life science taxonomy, MeSH (Medical Subject Headings)
- Providing fingerprints of relevant content facilitating discovery, insight and trend analysis
- Enabling query refinements to allow drill down to desired result
- Locating subject matter experts to facilitate collaboration

To implement a favorable solution quickly, with a highly constrained budget, MIHCS deferred the costs of purchasing software, hardware, and acquiring expertise plus a lengthy implementation process by paying a small fee to Collexis to host the system and provide a portal web access to JSC for a three-month pilot. The repositories selected for this first phase were sufficiently robust enough for JSC life science researchers to realize immediate scientific benefits and provide proof-of-concept. Using a pilot model with a phased approach, MIHCS has been able to proceed toward an optimal solution for end users while staying within budget. Forward work will include attracting a more diverse end-user group which will help offset direct costs to MIHCS.