

AN004. TECHNICAL TRAINING KNOWLEDGE ARCHITECTURE

PROJECT AT-A-GLANCE

- UNIVERSITY: The University of Akron
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RELEVANCE TO TECHNICAL TRAINING AND HUMAN PERFORMANCE

- This research has developed a text-based question answering system to support and enhance effective technical training, thereby increasing the human performance.

STATEMENT OF WORK

- Study features of START system developed by MIT support and enhance effective training.
- Demonstrate how text-based question answering system can support training by performing a case study using course materials of the FAA's training course

April 16-17, 2019
The Ohio State University

Three Approaches to Identify Related Topics

The screenshot displays the FAA Solr Knowledge Architecture web application. The interface includes a menu bar with options like 'File', 'Console', 'Extract documents', 'Estimate topics', 'Search Topics Report', 'Lexical database', 'Automate tasks', 'Preferences', and 'Help'. The main content area is divided into several sections:

- Text parsing**: Includes 'LDA Topics estimation' and 'Search Related Topics' tabs.
- Topic Search**: A search box containing 'maintain separation' and a 'Run all 3 methods for Topics Search' button.
- Find Topics By Header Phrases**: A section with a 'Find Topics' button and a 'Related to: maintain separation' field. Below it, a list of related topics is shown, such as '(1) lateral separation in holding patterns', '(1) maintain one thousand', and '(1) procedures using lateral separation'.
- Estimate topics using LDA**: A section with a 'Related to: Maintain separation' field and a 'List of words:' section. Below it, a list of words with their associated counts is shown, such as 'separation (2809.0)', 'maintain (2380.0)', 'aircraft (899.0)', etc.
- Solr Knowledge Architecture**: A section with a 'Get Related Topics on Solr' button and a 'Solr HTML output' field containing 'maintain separation.html'. Below it, a list of related topics is shown, such as '(17) separation', '(16) maintain vfrontop', '(10) longitudinal separation', etc.

STATUS

- Done with the development of a web-based prototype for identifying related topics using N-gram.
- Developing a hybrid approach to identify related topics by Header Phrase extraction, LDA, and N-gram.

FUTURE WORK

- Using AI tools to further refine related topic identification.
- Extend the system to identify frequently asked training questions.



Publications, Presentations & Awards

- Publications:

- Presentations:

I/ITSEC 2018 Conf., Orlando, FL, USA, Nov. 26 – 28, 2018.

- Awards: