

CS486C – Senior Capstone Design in Computer Science

Project Description

Project Title: wibTex: TEX style bibliography management compatible with MSWord	
Sponsor Information:	Dr. James Palmer, NAU-CS faculty

Project Overview:

In the world of academia, conferences and journals often have stringent guidelines on both stylistic formatting and file data formats required for publishing written work. Many Computer Science conferences sponsored by ACM, AMS, and IEEE require or encourage TEX based documents. Many conferences outside of Computer Science (and a handful inside such as CCSC) require Microsoft Word files. Further, interdisciplinary grant proposals are often done in Word because of the low adoption of TEX outside of CS, Math, or EE. Researchers who work across these publishing boundaries often must face huge inefficiencies as the bibliographic work they have developed for TEX does not easily translate to Word.

This project seeks to develop a citation management system compatible with BibTeX but developed to work with Microsoft Word documents. The project involves parsing bibliographic metadata, formatting citations with a templating engine using Word's internal XML format, and appropriately substituting TeX style citations in a Word document with citations appropriate to the bibliographic style selected. A TEX style workflow will allow usage on multiple systems (Windows, Mac, Linux) using any version of Word that supports the DOCX file format.

Knowledge, skills, and expertise required for this project:

All knowledge and skills required for this project should be quite simple to pick up at project startup. Beyond standard senior-level capabilities in programming and software design, helpful skills will include:

Document compression and decompression

- * XML parsing and manipulation
- * BIB parsing and manipulation
- * Programmatic templating languages
- * Bibliographic metadata representation and formatting
- * Robust error handling and testing
- * Command line tools
- * Expertise in Python and/or C

Equipment Requirements:

- ✓ No special equipment requirements beyond access to workstations for software development.

Software and other Deliverables:

- Level 0: The minimal outcome should be a functional command line tool with support for one bibliographic format (CCSC).
- Level 1: The expected outcome should be a functional command line tool with support for 2-3 bibliographic formats (CCSC, ACM, IEEE, APA).
- Level 2: An exceptional product would support 3-4 formats and would have a simple GUI for loading "projects" so that bibliographic transformations can be repeated without the command line.