Charles P. Jungmann

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Summary

Curious and creative, I like to experiment with lower levels of software to gain understanding. I enjoy solving problems and always try to be aware of the larger context to find processes that improve quality and productivity.

Skills

Languages:	C/C++, Javascript, HTML, CSS, XML, XSLT, T-SQL, Regular Expressions, BASH, Python, XSL-FO, Java
Software:	Emacs, MySQL, Doxygen, GCC, GDB, Git, Make, Valgrind

Projects

Schema Server

A FAST-CGI program that maps HTTP requests to the parameters of MySQL stored procedures and returns the procedures' results as compound XML documents. Includes data import/export and authenticated session management. It runs without PHP or other scripting support for extra security.

- Exclusively used stack memory for long-running performance, avoiding memory leaks and fragmentation.
- Designed an open-ended declarative script language.
- Created a command-line interface that simulates HTTP requests for debugging scripts and C++ code.

C++, FAST-CGI, MySQL C-Api, XML, Pipes with child processes and multi-threading. GDB and Valgrind for debugging.

github.com/cjungmann/SchemaServer

Schema Framework

A front-end software stack that uses XSLT and Javascript to generate HTML pages from XML delivered by the Schema Server.

- Wrote custom Javascript libraries to handle communication with server and XML and XSLT processing browser differences.
- Designed XSLT stylesheet protocol that renders pages in full or in part in response to user input, as well as on-the-fly indexing for client-side table joins.

Javascript, XSLT, CSS

github.com/cjungmann/schemafw

Appalachian Underground Corrosion Short Course (AUCSC) Client: The Examiner	A web application that collects demographics, delivers test results, and creates and delivers PDF documents associated with mastery tests for industrial continuing education. • Wrote BASH scripts to import MS-Access databases of test results to MySQL. • Used PHP to collect demographic forms data and inform users of their test results. • Wrote AJAX application for AUCSC administrators to view test results, user activity and comments, and aid users with problems logging in. • Used Python and XSLT to generate XSL-FO documents with which Apache FOP generates PDF notification letters and certificates of achievement. • Wrote Python script to email PDF documents to the students and, if requested, to their supervisors. • Provide phone and email support to AUCSC administrators. PHP, Python, AJAX, XSLT, XSL-FO, Apache FOP, BASH, customer support
MySQL Access Library	An experiment to learn about creating a Linux shared-object library. This project is a cleaner implementation of the MySQL section of Schema Server that includes source files to demonstrate how to use the library. C++, MySQL C-Api, Linux Shared-object Library https://github.com/cjungmann/libmysqlcb
Menu-Order	A web application that helps school administrators manage school lunch ordering. Features include creating ordering menus, collecting student orders, sending email notifications, and printing order calendars for families, teachers, and lunch administrators. This application is currently in use at five elementary schools. • Wrote PHP and MySQL code to manage data records. • Designed XML data output and XSLT stylesheets to allow main page rendering and switching between several user-selectable views of data without server intervention. • Wrote a Javascript module to handle browser compatibility issues with XML and XSLT handling. • Wrote Python scripts to work with the application to notify families, via email, of new menus or missing orders. • Provide phone support. PHP, MySQL, AJAX, XML, XSLT, Python

Neighborhood View Client: Geospan Inc.	A virtual driving application that predates Google's Street View. • Designed SQL-Server tables and procedures to optimize performance through the delivery of image meta-data. • Designed and implemented client-side Javascript algorithms for using image meta-data for selecting and cropping images, as well as mapping the image edges on a map, according to the target geographical location and zoom level. • Designed and implemented an HTML viewer program using IFrames, Javascript variables, and Javascript code to manage asynchronous data transfer of image meta-data and image files. Microsoft ASP, JScript, SQL-Server, MapX, Javascript
The Examiner System Client: The Examiner Corporation	A Windows application for delivering mastery tests, written to replace an existing MS-DOS application. • Wrote C++ code to construct on-the-fly tests from pools of test items according to a recursive test specification. • Designed Windows delivery and judgment of true/false, multiple choice, matching, and short answer question types. • Used the FairCom C-Tree database library to store and access the item pools. C++, Microsoft Windows-API, C-Tree database API www.xmn.com/Products/ItemBanking.html

Education

BA Economics, Carleton College