

# Quarterly Report

**Name and address of reporting institution:**

University of Utah, Spencer S. Eccles Health Sciences Library

10 North 1900 East, Building 589, Salt Lake City, UT 84112-5890

**Project Title:** Development of an Open Source Research Process Assistance Template that Supports CTSA and Research Initiatives

**Name of person submitting report:** Jean P. Shipman

**Email address:** jean.shipman@utah.edu

**Telephone number:** 801-581-8771

**Reporting Period start date:** January 1, 2011

**Reporting Period end date:** March 31, 2011

**Publicity:**

Work has commenced on a professional publication about the needs assessment process and outcomes conducted for MyRA.

Jean Shipman will be presenting about MyRA and the other MCR, NN/LM funded CTSA-support projects at the RML Directors' Meeting on May 12, 2011. She also was invited to speak as part of a panel at the Group for Information Resources, AAMC meeting on June 7<sup>th</sup> in Miami, FL. The topic is "Building a Sustainable Research Enterprise" and will feature both MyRA and the physical space for research support being constructed in the Eccles Health Sciences Library.

**Outreach:**

None to report.

**Other accomplishments:**

A computer professional, Dustin Schultz, had been assigned to work on MyRA development starting in March (see attached resume). Architectural design documents for MyRA v 2.0 have been completed and will be used to develop this version. Other development items for this quarter from Dustin include:

- Created bug, issue, and project tracking for MyRA using JIRA
- Translated requirements gathering documents into user stories and technical tasks by utilizing JIRA Greenhopper, an agile development tool.
- Evaluated and decided on a scalable and loosely coupled architecture involving Drupal WCM, Alfresco ECM, and some custom development that meets the requirements and needs of assisting researchers.
- Upgraded and transitioned documentation wiki to new version to better support development tasks and integration with bug tracking software.
- Creation of development environment is in progress

- A version control management system has been installed (Gitorious)
- Tools for developing MyRA are being decided on
  - Eclipse with PHP Plugin for PHP development
  - Eclipse with EGit for version control
  - Drush, Drush Make, Drupal Installation Profiles, and XAMPP for creating a portable and reproducible instance of MyRA as well as setting up a quick development environment
- A strategy was developed and documented for managing external (vendor) code like Drupal and Alfresco versus managing custom code
- Shared resources for the MyRA Team have been created
  - A shared drive for storing documents and presentations
  - Three emailing lists
    - [myra@lists.utah.edu](mailto:myra@lists.utah.edu)
    - [myra-software-dev@lists.utah.edu](mailto:myra-software-dev@lists.utah.edu)
    - [myra-technical@lists.utah.edu](mailto:myra-technical@lists.utah.edu)
- Three development servers have been requested to begin prototyping the new MyRA architecture
  - A database server
  - A repository server
  - A web server
- A new 50K foot architecture document was created for low/non-technical audiences to understand the technology (attached).

#### *MyRA 1.0 - Static Web site Progress*

More content has been added to the MyRA v 1.0 Web site – see <http://www.ccts.utah.edu/myra/>.

Design plans for a physical research support center within the lower level of the Spencer S. Eccles Health Sciences Library are under review and should go to bid soon. Within this space, the administration for the University's CTSA Award will be housed and hopefully support staff for researchers including a concierge. A presentation to determine if funding is available for a concierge and for further technical support for MyRA's virtual presence has been scheduled with the University of Utah Office of Research for April 25, 2011.

#### **Target audience:**

None to report.

#### **Goals, Outcomes, Objectives:**

The subcommittee of the MyRA committee to storyboard the advanced version (version 2) of the virtual MyRA will convene since the new computer professional has been assigned.

**Evaluation:**

Feedback sessions regarding the static MyRA web site was given to two internal University of Utah groups from the University of Utah Clinical Research Committee on March 14<sup>th</sup> and 23<sup>rd</sup>. Jean Shipman spoke with the Four Corner Directors on March 25<sup>th</sup> and they agreed to have their staff review the web site to identify missing content and to determine applicability to and relevance for their local needs.

Great suggestions for additional web site was gathered from these sessions. As a result, a “For Patients” tab was added to include information about available University of Utah Health System clinical trials – listed by department. Also, several additional funding sources and collaboration sites were added. Placement of key links were rearranged for easier navigation and discovery. Also some discovery links were renamed for clarity. We also included several sample grants from NIH sites as well as a video and information about the scientific grant review process. For grant writing, information about citation management software was added.

**Impacts and Observations:**

The desire for a robust MyRA has been expressed repeatedly by many at the University of Utah. The complementary support it offers to current university resources has been discussed and parameters established with the Office of Research. Many features that are highly desired by researchers take time to develop as far as their featured content – for example, how can you create a site that is personalized to your specific research needs if the desired information has not yet been gathered or easily identified. A tool can be developed to house such information but it has to exist.

**Planned Activities:**

Additional content will be added to MyRA 1.0 and identified for inclusion in MyRA 2.0. A template will be produced to be shared with other libraries for local customization.

1. Four Corner librarians will review the MyRA 1.0 website for content gaps and relevance to local needs.
2. A subcommittee of the University’s MyRA Committee will work with technical staff to storyboard the design of MyRA 2.0.
3. The MyRA needs assessment publication outline will be further fleshed out and shared with all authors.
4. Additional information architecture work on MyRA 2.0 will be completed.
5. Design of a physical research support center within the Spencer S. Eccles Health Sciences Library will be completed and construction of the center will begin.
6. A final report will be written at the end of April.

---

## NICHOLAS DUSTIN SCHULTZ

11541 S. Lampton View Dr.  
South Jordan, UT 84095  
(801) 712-1007  
schultz.dustin@gmail.com  
<http://www.cs.utah.edu/~schultzd/>

### BACKGROUND

I am a well-qualified IT professional with a proven track record of being committed, loyal, hardworking and respected. I have over four years of practical software development experience and possess exceptional communication and interpersonal skills. I have been a key contributor in designing, developing and implementing an innovative and cutting edge application at the Center for Clinical and Translational Science (CCTS) at the University of Utah that allows clinical researchers the ability to query real-live clinical data from multiple disparate data sources. I have excellent abilities to learn quickly, work effectively in a team environment, motivate others, and consistently complete successful projects.

### PROFESSIONAL EXPERIENCE

University of Utah, Office of the AVP for Health Sciences IT, Salt Lake City, Utah ,  
2009 – Present

#### **Software Engineer**

- Technologies used included Java SE 5, Java SE 6, Java Annotations, Spring Framework 2.5.6, Hibernate 3.4, JUnit, AspectJ, Spring AOP, JAXB 2.0, Apache CXF, XML, W3C XML Schema, Schematron, XPath, XQuery, XSLT, HTML, XHTML, AJAX, SOAP, REST, JAXRS, JAXWS, SQL.
- Engineered cutting edge software to federate health data from multiple heterogeneous data sources including the University of Utah's Enterprise Data Warehouse and the Utah Population Database utilizing open source and Web 2.0 technologies.
- Implemented core data source processing functionality responsible for invoking query initialization, query translation, query execution, result translation, and result persistence.
- Implemented generic components to retrieve data from varying types of data sources including databases and web services.
- Assisted in the development of a logical XML query structure based on Hibernate Criteria with specializations for health care domain queries.
- Developed custom integrations for interfacing Informatics for Integrating Biology & the Bedside (i2b2) user interface and backend.
- Interfaced with Senior Content Engineer to assist with the design and development of medical terminology translation web services for data interoperability.
- Worked closely with Project Coordinator to develop requirements and give time estimates for implementation.

- Interfaced with Senior Data Architect to assist with the design and development of logical query translation and federated result set querying.
- Collaborated with other developers in a fast paced and highly fluid environment to design and implement project requirements.
- Developed loosely coupled, highly modular code utilizing Maven 3.0 and OSGi
- Wrote highly tested code using unit tests and integration tests.
- Made strong use of design patterns and industry recommended development practices.
- Practiced strict rules for code quality and code documentation.
- Followed test driven and agile development methodologies.
- Used Hudson for continuous integration and automated testing of project.
- Deployed modules to OSGi based FUSE Enterprise Service Bus (ESB) (EAI) 4.0 to facilitate a Service Oriented Architecture (SOA).
- Used Atlassian JIRA for bug tracking and release development.
- Utilized Eclipse IDE 3.4 & 3.5, Subversion 1.6, Subclipse, M2Eclipse, and Spring IDE 2.2 as daily development environment.
- Constructed complex SQL queries against Oracle 10g/11g, HyperSQL (HSQLDB), and MySQL databases.

Yale University, Technology & Planning, New Haven, Connecticut, 2008 – 2009

#### **Web Systems Analyst**

- Technologies used included Java SE 5, Java SE 6, Spring Framework 2.5.5, Spring MVC, Spring Portlet MVC, Spring Security 2.0, JUnit 4.4/4.5, Java Servlet 2.4, Axis 1.4 Web Services, EhCache 1.4, AJAX, jQuery, Dojo, Javascript, HTML, XHTML, XSLT, JSTL, JSP, and CSS.
- Work closely with project manager to plan and create business requirements needed for a significant upgrade from open source portal framework which included evaluating and analyzing over 50+ customizations, development of data migration methods, exporting, cleaning, and migrating thousands of user's layouts and preferences, customizing and upgrading of JSR-168 portlets, and architecting a new portal environment.
- Developed custom Model-View-Controller (MVC) based JSR-168 portlet which used Yale's Central Authentication Service (CAS) to proxy authenticate and make SOAP Web Service calls to retrieve user work tasks from BPM software Lombardi Teamworks 6.1.
- Customized portal framework to reset all user modifications to the demo user's layout using Quartz Enterprise Job Scheduler and the Spring Framework.
- Built portal and portlet projects using Maven 2.0 and Ant.
- Deployed portal framework and portlets to Apache Tomcat 5.5 and Apache Tomcat 6.
- Maintained portal, portlets, and content using Subversion 1.5, Eclipse IDE 3.3, MyEclipse 6.1, Eclipse IDE 3.4 Ganymede, and Spring IDE 2.2.
- Used Oracle SQL Developer 1.5.1 as well as JDBC to query, insert, and update Oracle 10g and 11g RDBMS.

- Introduced and administered Maven 2 repository for entire department using enterprise Maven 2 repository, Artifactory 2.0.1.
- Worked from Microsoft Project plan during the upgrade of the portal framework.
- Assisted in establishing best practices for source control (SCM), Java development, content development, release management, and application and portlet deployment.
- Issued bug fixes and improvements to portal and portlets using issue tracking software, Atlassian JIRA.
- Deprecated old content and worked to establish clear functional and technical owners of content within portal.
- Configured, built, and maintained university portal, portlets, content, and resources in 4 instances of the portal.
- Documented upgrade process, portlet development, and helpful tips for team members using Microsoft Visio and Atlassian Confluence wiki.
- Reported bugs, improvements, and committed bug fixes to the open source uPortal project.

Southern Utah University, Cedar City, Utah, 2005 – 2008

#### **Portal Developer**

- Created, managed, and implemented JSR-168 compliant portlets.
- Delivered visual customizations and bug fixes to portal framework.
- Technologies used to generate portlets included Spring Framework 2.0, Spring MVC, Struts 2, Hibernate, AJAX, jQuery, Dojo, Javascript, HTML, XHTML, XSLT, and CSS.
- Maintained portlet projects with Subversion, Eclipse IDE, and MyEclipse add-on.
- Interfaced with Oracle 10 RDBMS and Oracle 11g RDBMS to retrieve data from SCT Banner.
- Assisted in the development of an internal campus wide help request and task management system which allowed clients to submit technical support requests and IT staff to create and assign tasks for work management.
- Used Ant and Maven to publish and deploy portlets to uPortal and Tomcat.
- Documented development and best practices to enterprise wiki Atlassian Confluence.
- Participated in code reviews using Atlassian Crucible.

#### **ASP.NET Web Developer**

- Planned, programmed, developed, and maintained several effective and user friendly web applications for Southern Utah University through ASP.NET 1.1/2.0, C#, and IIS 5.5/6.0.
- Designed and implemented a main events calendar for displaying current university events and an administrative interface which used LDAP authentication and allowed calendar administrators to add, edit, or delete events.
- Programmed reusable LDAP authentication library for authenticating web system users against Novell eDirectory.

- Developed University Relations News and Information system which displays and offers RSS feeds for current and archived news as well as an administrative system for input of new articles.
- Built highly used and popular university auctioning system titled “T-Bay” which allowed students, faculty, and staff to sell or post need of textbooks, apartment contracts, rides, or general items.
- Implemented student electronic voting system used by the entire university to elect student body officials.
- Built applications with Visual Studio 2003 and Visual Studio 2005
- Met timely deadlines with quality and assurance.

## PROFESSIONAL DEVELOPMENT

**SpringOne Americas, Hollywood, Florida, December 2008**

## VOLUNTEER AND COMMUNITY SERVICE

International Coastal Cleanup

**Coastal Cleanup Day, Long Wharf Beach, New Haven, Connecticut, 2008**

- Cleaned up the New Haven Long Wharf beach by picking up and itemizing trash and recyclables. This provided the Ocean Conservancy with the types and amounts of trash collected so they could analyze the cause of the trash and determine a solution.

Edgerton Park Conservancy

**Community Greenhouse Cleanup, New Haven/Hamden, Connecticut, 2008**

- Repotted several plants which had outgrown their current pots, cleaned greenhouse doors and windows, trimmed dead leaves from plants and trees, swept floors of debris, and brought in plants to greenhouse from the community garden for the winter.

## COMPUTER SKILLS

### **Operating Systems**

Windows XP/Vista/7, Ubuntu Linux, Mac OS X, Red Hat Linux

### **Applications**

Microsoft Outlook 2003/2007, Microsoft Office 2003/2007, Altova XMLSpy, Enterprise Architect, Adobe Photoshop CS 4

## EDUCATION

**Master of Science in Computer Science, May 2011**

University of Utah, Salt Lake City, Utah

Focus: Computer Security

**Bachelor of Science in Computer Science, Major GPA 4.0, May 2008**

Southern Utah University, Cedar City, Utah

**My Research Assistant 2.0 Architecture Overview**

- CMS – Content Management System
- CMIS – Content Management Interoperability Services

