Joseph Robert Coco

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Experience

Vanderbilt University   Nashville, Tennessee
Health Systems Analyst Programmer   August 2013 - Present
- o Reengineer family history application to capture structured data to attain meaningful use grant using PHP, Javascript, MySQL, C, and madeline2
- o Engineer software to aid clinicians in analyzing, utilizing, presenting, and requesting next generation sequencing data for personal genomic treatment using Oracle and Java

Family Health Information, a prototype for recording structured family health information similar to the Surgeon General's My Family Health Portrait tool. It provides multiple views and inputs for scaffolding a robust, maintainable family history. It implements industry standards such as SNOMED and HL7 FHIR, and handles interesting fringe cases such as consanguinity. Decision support will be built into the tool to aid clinicians in diagnosis and recommend tests. Built upon LAMP, this web tool allows for secure and convenient entry of health information with graphical interfaces enhanced by various Javascript libraries.

SCAD: The University of Creative Careers   Savannah, Georgia
Software Developer   August 2011 – July 2013
- o Collaborate with designers, IM&T, and customers to develop, maintain, and architect websites in CommonSpot, Drupal, PHP, ColdFusion, CSS, JavaScript, and HTML
- o Create custom and contributed modules to aid in main website rebuild

Scad.edu Rebuild, http://scad.edu is a website for an arts university with rich data relationships, complex data work flow with custom administrative interfaces, and responsive design. It is utilizing Drupal 7 methodologies with many custom and contributed modules. It's built upon LAMP with LESS for formatting and Javascript for interactivity. Panels is used for some basic pages, but custom views are built for others. Many custom data entities were created to aid in complex business logic.

SCAD Museum of Art, http://scadmoa.org is a website for an arts University designed to attract visitors to this modern museum of contemporary art and demonstrate the learning facilities there. It uses Drupal 7 running on LAMP. AJAX is used extensively for data CRUD. Custom views were created built upon a complex taxonomy system.

SCAD.edu, http://scad.edu is a website for an arts university designed with a Flash splash screen, CommonSpot CMS, ColdFusion 9 for logic, jQuery 1.6 with AJAX for interactive components, and with a MySQL 5 back end. Many of the sub sites are designed with the Drupal 7 or WordPress 3 with PHP5 for logic.

University of New Orleans   New Orleans, Louisiana
Research Assistant   July 2010 – May 2011
- o Develop PARSES, a pipeline for analysis of exogenous RNA using Perl and Ruby
- o Publish and present results regularly
- o Explore best methods to analyze exogenous RNA

PARSES: A Pipeline for Analysis of RNA-Sequencing Exogenous Sequences,
https://github.com/Lythimus/PARSES is a pipeline constructed from existing sequence

analysis tools which allows a researcher to interrogate RNA-Sequencing experiments for possible biological contamination or the presence of exogenous sequences that may shed light on other factors influencing an organism's condition. Built upon Rake (Ruby), with some Perl scripts, PARSES allows simple analysis of RNA-Sequencing data in an automated and repeatable fashion. Usability, logging, and versatility are the keynotes of this pipeline. It has been resigned as a fork of the Galaxy project.

Teaching Assistant   August 2009 – June 2010

o   Teach, assist, and grade students with Java lab reports and software projects

CSCI 1581 Software Design and Development I Laboratory (4 sections), is a course taught for two hours of laboratory each week to accompany CSCI 1583. Applications, exercises, and explorations in methodologies, software design, and development. Topics include designing specifying implementing and testing elementary classes; developing simple algorithms in an object-oriented programming language; programming by contract; implementing fundamental structural relations between classes. Intended primarily for CSCI majors.

CSCI 2121 Software Design and Development II Laboratory (2 sections), A continuation of CSCI 1583 and 1581 with emphasis on algorithmic techniques and the structuring of larger systems. Topics include sorting and searching, recursion, inheritance and polymorphism, composition, abstract classes and interfaces, exception handling, and the model-view-controller structure.

Space and Naval Warfare Systems Command New Orleans, Louisiana

Software Developer   June 2008 – June 2010

o   Develop web and desktop applications in Java, PL/SQL, and C#
o   Write documentation following waterfall and CMMI processes

CSAMS: Calibration Standards Asset Management System, (closed to the public) is a web service written in JavaEE using a seven tier web architecture running on TomCat backed by PL/SQL 11g with a JSP and Javascript front end using JReport for reporting. Developed using CMMI Level 3 practices. It ensures the readiness of test equipment to perform accurate measurements and provides valid data with reporting. It also schedules the testing for preciseness and accuracy of equipment regularly. During development I gained a keen understanding of the page life-cycle and database interactions of web applications. The project required I write customer help documentation, specification documents, use cases, test plans, unit tests, et cetera. Complex, custom AJAX interface components were developed to minimize data entry error and need for reference. Tasks were assigned as features and required a full stack implementation rather than designating developers as front end of back end.

TWPAM: Team Work Plan Automation Module, (closed to the public) is a web application written in Java with hard coded PL/SQL and a JSP front-end for planning personnel, material & logistic requirements, resource allocations, and individual resource assignments across field activities supporting multiple SYSCOMs. It is being redesigned using CMMI level 3 practices in JavaEE with a PL/SQL back end and a JSP and Javascript front end using a five tier web architecture with JReports for reporting.

Archon Information Systems   New Orleans, Louisiana

Software Developer   January 2008 – April 2008

o   Design GUIs in ASP.NET, C#, and CSS for web applications

Civic Source Auctioneer, http://www.civicsource.com/ is a web application written in C# 3.5 and ASP.NET to provide an online forum for banks, cities, counties and parishes to sell tax liens and delinquent, foreclosed and adjudicated properties. It was developed using

Agile processes. It harnesses a SQL Server spatial database back end using LINQ to display properties to users with information regarding the property harvested from legal documents via advanced OCR techniques and regenerated using Crystal Reports templates.

Core Competencies

Object-Oriented Programming, Java (JEE, Spring, TomCat, Beans), C# (Visual Studio), Perl, Ruby, C++*, mobile development (Android*, Appcelerator).

Procedural Programming/Scripting, Perl, MATLAB*, shell (bash), Python (SciPy), PHP, STATA*, Galaxy Framework, x86 Asm*, C* (C++*), Javascript (jQuery), Ruby (Rake), Haskell*, and LISP*.

User Interface, HTML5, CSS3, LESS, SASS, Processing*, JSP, ASP.NET, Illustrator, Photoshop.

Data, designed Oracle, MongoDB, and Access databases; developed with PL/SQL, TSQL, MySQL, STATA*, XML (XPath), JSON (JSONPath, HL7 FHIR), and MongoDB; reported with LaTeX*, jReport, and Crystal Reports.

Cloud and Parallel Computing, Amazon Web Services (S3, EC2), TORQUE.

Design patterns, Abstract Factory, Factory Method, Lazy Initialization, Prototype, Singleton, Adapter, Composite, Decorator (via aspects), Command, Iterator, Observer, Visitor, Messaging, and Read-Write Lock.

Requirements, extensive Java specification document familiarity*, Java API doc familiarity, unit testing (JUnit*, Microsoft Unit Test Framework), member and competency leader of 2 CMMI level 3 teams, specification, use cases, user stories, quality control, configuration management (versioning, tool analysis), risk management, and requirements.

Reverse Engineering, Java bytecode analysis*, x86 obfuscated reverse engineering*.

Library Development, API, library*, and interface development in Java, module contributions in PHP for Drupal 7.

UNIX system administration, Slackware*, Ubuntu, Solaris, Fedora, Knoppix*, FreeBSD*, MacOS.

Artificial neural networks, LDA, QDA*, SVMs*.

Hierarchical clustering, MCMCs*, maximum Likelihood, mixture models*.

* denotes not utilized in a professional work environment

Publications

Strong, M. J., Xu, G., Coco, J., Baribault, C., Vinay, D. S., Lacey, M. R., … Flemington, E. K. (2013). Differences in Gastric Carcinoma Microenvironment Stratify According to EBV Infection Intensity: Implications for Possible Immune Adjuvant Therapy. (P. M. Lieberman, Ed.) PLoS Pathogens, 9(5), e1003341. doi:10.1371/journal.ppat.1003341

Lin Z, Puetter A, Coco J, Xu G, Strong MJ, Wang X, Fewell C, Baddoo M, Taylor C, Flemington EK (2012). Detection of Murine Leukemia Virus in the Epstein-Barr Virus-Positive Human B-Cell Line JY, Using a Computational RNA-Seq-Based Exogenous Agent Detection Pipeline, PARSES.

Coco, J. R. (2011). *PARSES: A Pipeline for Analysis of RNA-Sequencing Exogenous Sequences*. M.S. Thesis. University of New Orleans: U.S. Retrieved from http://goo.gl/ydIEr.

Coco, J. R., Flemington, E. K., & Taylor, C. M. (2011). *PARSES: A Pipeline for Analysis of RNA-Seq Exogenous Sequences*. Bioinformatics and Computational Biology (Vol. 7, pp. 196-200). New Orleans, LA. Retrieved from http://goo.gl/skT1b.

Education

University of New Orleans   New Orleans, Louisiana
- o   M.S. of Computer Science   Fall 2009 – Spring 2011   GPA: 3.444
- o   B.S. of Computer Science   Fall 2005 – Spring 2009   Major GPA: 3.445