

# BRADLEY A. MOMBERGER

## FRONT END SOFTWARE ARCHITECT & TESTING CONSULTANT

### Contact

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### Summary

- Architect-level design, engineering, and development of enterprise software.
- Full suite of software testing expertise (unit, functional, and integration testing)
- Custom Web applications built from scratch and from middleware layers.
- Collaborative development of applications exceeding 250 KLOC.
- Experienced in HTML5 client-centric applications; Agile processes; and Rails, Python, LAMP, and J2EE/Oracle ecosystems
- Distributed version control (Git) expert, including parallel development and versioning schemes
- 10+ years professional experience in application development (13+ years total experience)

### Professional Experience

**Reciprocity, Inc**, San Francisco, CA 2012-2015

*Reciprocity is seeking to revolutionize the Governance, Risk, and Compliance space with ZenGRC, a new generation of compliance management application with easy deployment and configuration for organizations of all types and sizes.*

**Employee #4, Google-Reciprocity Open-Source GRC Project** 2012-2015

*Reciprocity's enterprise application derives from a partnership with Google Engineering Compliance to develop a scalable, usable, open source, Apache-licensed replacement for tracking compliance audits and assessments with spreadsheets.*

- Worked directly with client for requirements gathering and deliverable demonstrations.
- Mentored contract developers from other suppliers, in the application design and writing effective frontend code
- Contributed to Python/Flask backend (V2) and legacy Rails (V1) backend.
- Refocused V1 frontend strategy from Rails-based HTML generation toward CanJS and Mustache templating.
- Architected V2 frontend from scratch using CanJS, providing a rich client experience
- Contributed CanJS framework bug reports and fixes to main branch.
- Wrote 100% of the unit tests for frontend components.
- Leveraged other technologies: jQuery, jQuery++, jQuery-UI, moment.js, spin.js, Bootstrap-Sass, JsFiddle, WysiHTML5 (modified), Alembic, Flask-MySQL

**Cengage Learning, Inc**, Boston, MA 2010-2012

*Cengage is the one of the world's largest publishers of textbooks, whose software divisions include Aplia, Course360, CourseMate, CengageNOW, CengageBrain, Gale custom search, and most recently, MindTap.*

**Software Engineer, MindTap** 2010-2011

**Senior Software Engineer, MindTap** 2011-2012

*MindTap is Cengage's third-generation digital content distribution platform, which encompasses ebook content from Cengage's catalog of textbook titles, as well as a virtually unlimited trove of collaborative content from Cengage's internal and external providers through MindApps running inside the MindTap platform. MindTap is one of the largest client-directed applications of 2010, preferring to process dynamic content through EJS templates and REST services returning JSON.*

- Developed client side capabilities using the JavascriptMVC framework.
- Pushed the adoption of JavaScript unit testing frameworks.
- Developed advanced accessibility solutions, which allow MindTap to be used effectively by mobility impaired persons using keyboard access and visually impaired users accessing MindTap with the assistance of JAWS, NVDA, VoiceOver, or ChromeVox.
- Collaborated with offshore talent in a mentor role, and as code quality assurance.
- Major contributions include automatic provisioning of users into MindTap from external services, deep linking into MindTap content from external sites, dynamic annotations within text content, idle user timeouts across domains, UI filtering on roles and permissions, cross-application content graphs, automated UI test framework integration, and full Internet Explorer support.

#### **Sorrison Technologies, Inc, Acton, MA 2007-2010**

*Sorrison Technologies is the industry leader in bill-focused Web self service solutions in the domains of telecommunications and capital equipment finance. Sorrison's Persona middleware engine allows developers to easily turn site designers' use cases into deployment-ready Web applications while reducing the amount of custom Java code by two-thirds over a similar site in JSP or Struts.*

#### **Software Consultant, Professional Services, 2007-2010**

*The Professional Services team leverages the Persona engine to create custom client Web applications. Each application begins as a series of use cases detailing the user experience with the system. This set of documents is codified into engine-readable XML by the developers and fleshed out with data definitions, action sequences including calls to Java methods, display rules, and messages to send back to the user's screen. A set of these files plus the associated Java code creates a fully functional application. The Persona application can run as an enterprise application with EJBs within WebLogic, as a Web application within Tomcat, or standalone with its own HTTP processor.*

- Vodafone UK: Parallelized and performance tuned memory heavy Oracle EBM batch jobs to minimize client hardware investment, extended the Velocity-based reporting system to allow multiple reporting tables in a report as well as different table layouts and subtotals, provided deployment support for go-live: meetings with departments about notification scheduling, readying and debugging user migration in multiple Solaris environments interfacing with Tibco TIL (messaging through Tibco EMS, a superset of JMS), debugging problems with notifications by SMS, staggering release of statement ready notifications, updated documentation, coordinating on-site and off-site teams. Leveraged the following J2EE components: Servlets, Session Beans, MDBs, JSP.
- Paccar Financial Corporation: Contributed development efforts to proof-of-concept site, and to pilot program promoted to public site. Created payment account services (ACH/credit card) linking to Oracle EBM. Made extensive use of XSLT (Xalan-J) to create pixel-perfect layout of billing site according to specification, debugged with Firebug on Firefox. Implemented Web Services with Axis2 to receive payment information from Paccar servers. Used client-side JavaScript to synchronize client's Sharepoint site with Persona-based billing site running inside

an iframe.

- Rave Wireless: contributed new pages to custom JSP order management site (not based on Persona). Created a dynamic client-side calculator generator in Java to allow for easy calculation of account adjustments.
- Tele2 Sweden: Maintained and extended a branding and extension of the internal SaaS solution (see below) for B2B billing management. Leveraged jQuery for efficient DHTML and page content manipulation. Fixed hundreds of defects in branding, especially related to cross-browser rendering; site looks the same in IE7, IE8, Firefox, and others. Added support for print media CSS and downloading search results as CSV.
- Internal Software-as-a-service project: implemented service layers for encryption and notifications. Implemented Persona use case for user/CSR/bill verifier profile management, audit log review, and profile changes by CSR on behalf of user. Created a user interface for corporate structure management through tagging of accounts and assets. Backported extensions from Tele2 project including analytics, management of account bundles, and single registration flow for multiple sources.
- Acted as a consultant to Sorriso's own Engineering team to extend the capability of the Persona engine. Added a tree view data widget, completed the implementation of extended table features, created new string operations, designed and implemented support for scripting with Mozilla Rhino to allow data manipulation without external Java calls, added new input file validation routines, and fixed more than sixty bugs.
- Used the following technologies for aforementioned client projects: JUnit with mock objects, JDBC, Oracle EBM with CBM and CBA, OLAP, Spring, Apache Commons, XML, XSLT, HTML with CSS and Javascript, Eclipse with EclipseShell for task automation, Subversion, Log4j, Kawa Scheme interpreter for JVM, Apache Ant, regular expressions.

### **BlueRiver Systems, Worcester, MA 2003, 2006-2007**

*BlueRiver Systems is a custom software boutique, as well as the creators of BlueRiver Systems ImageView remote image storage application, and its successor, doXstor remote document storage ("Put Your Stuff Away(TM)"). BlueRiver also owns FlightLevel, creators of the FlightLevel Logbook pilot logging software built in Delphi, with companion mobile applications built with Satellite Forms.*

#### **Lead Project Developer, 2003**

- University of Pennsylvania: Created and scripted forms for Visual Basic 6 student support application. Automated MS Word to automatically fill data fields in a document template and display the resulting new document to the user. Extended the MSSQL database backend for new functionality.
- BlueRiver Systems Imageview: Ported entire application from ASP on IIS to PHP on Apache. Created table layout engine for ImageView from scratch. Created AJAX-based administration application from scratch. Created database abstraction layer on top of PHP's MySQL and ODBC libraries. Integrated fulltext search from dtSearch into ImageView (PHP COM automation) for storage of MS Office, PDF, and text formats. Created upload application for pushing single documents into ImageView. Performed system administration in Red Hat 9 server environment to support ImageView installations.
- Holland Insurance Agency: Created PHP insurance quote application from scratch.

#### **FlightLevel Support Staff, 2006-2007**

- Fixed outstanding bugs in FlightLevel Logbook and mobile companions
- Provided phone and email support to FlightLevel customers
- Created an installer for Windows Mobile version of mobile companion using Nullsoft Installer

System, Microsoft RAPI, and ActiveSync automation. Extensively tested installer in fresh Windows installations using VMWare.

**Project Developer, 2006-2007**

- Extended doXstor (formerly ImageView) administration application to allow user rights by group.
- Leveraged PHP/Java Bridge to automate the iText Java library.

**Worcester Polytechnic Institute, Worcester, MA 2004-2006**

**Developer, Database Systems Research Group, 2004-2006**

*WPI's Database Systems Research Group has focused on stream monitor query engines and associated research since 2003. The CAPE system is the relational query processing system which sits atop the Raindrop stream processing engine. Unbounded input streams of data can be processed like base relational tables using an XML Algebra Tree of operators. The processing can occur over multiple servers in a local network, but achieving optimal performance in this architecture is an unsolved problem. Intermediate data is passed between nodes asynchronously in a pattern similar to Message Queuing.*

- Created demo for the Conference on Very Large Databases 2004
- Developed CAPE extensions and tools in Eclipse with CVS source control. Designed and developed a system of relational stream operators where multiple identical network streams in parallel allowed simultaneous, load-balanced execution of operators across multiple network nodes.
- Leveraged Java and UNIX process management through tcsh shell scripting to create an automatic CAPE process launcher for Sun Grid Engine on the Rocks Cluster Linux distribution.
- Wrote documentation for the CAPE extensions using LaTeX.

**Teaching Assistant, 2004-2005**

Courses taught: Programming Language Concepts, Social Implications of Information Technology, Introduction to Program Design, Software Engineering, and Human-Computer Interaction.

**QED Imaging, Inc., Pittsburgh, PA 2001**

*QED Imaging's flagship software, also called QED Imaging, created a familiar visual environment for remote microscope control, and automated capture, slices, trend charting, and tracking of individual elements. QED Imaging was acquired by Media Cybernetics in 2004.*

**Intern, 2001**

- Leveraged PHP, Apache, PGP, C, and FreeBSD to replace a fax-in order form on the QED website with an online submission order form.
- Updated the QED Imaging hardware compatibility list
- Edited the QED Imaging product manual and added new chapters for recently implemented features.

**Skills not used professionally**

HTML5 canvas, C++, sed, awk, GDB, node.js, Flash/Actionscript, Director, Photoshop, GIMP, Illustrator, Inkscape, Final Cut Pro, Vegas Movie Studio, IRIX, Maya, OpenGL, GLUT, Audacity, Heroku, OpenShift, CSS3 advanced features, Service Workers, live media production (TV, stage performance)

### **Conferences, demos, and papers**

- Demonstrated the Distributed CAPE system at the 2004 Conference on Very Large Databases
- Wrote the demonstration slides and talk for Distributed CAPE at VLDB 2005
- Received \$100,000 in grants from the NSF's Computing Research Infrastructure program

### **Education**

**Worcester Polytechnic Institute (WPI)**, Worcester, Massachusetts *2003-2007*

- Graduate Studies in Computer Science
- Thesis title: Balancing Memory Load in Distributed CAPE Using the SPREADFIRE Replication-Style Distributed Partitioning System

**University of Maryland Baltimore County (UMBC)**, Baltimore, Maryland *1998-2002*

- BA in Visual Arts – Imaging/Digital Arts 2002
- Minor program in Computer Science