

RAKESH VIDYADHARAN

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Professional Expertise:

- Polyglot developer with expertise in C/C++, Java, Objective-C, and Scala
- NoSQL (Content, Document, Key-Value, and Object databases) and SQL database experience
- 19+ years of software engineering experience
- Full-lifecycle software development experience (architecture, design, implementation, testing, deployment and support)
- Self starter, quick learner and team player

Experience:

Tempus, Chicago, IL March 2017 to Present

Senior Software Architect

Architect software systems for Tempus. Tempus attempts to combine patient genetic record information with known clinical records related to various types of cancer and effects of drugs and treatment combinations to suggest optimal treatments plans to partner hospitals, doctors etc.

Moraine Valley Community College, Palos Hills, IL January 2016 to Present

Adjunct Faculty

Teaching Android Programming I and II courses.
Teaching Advanced Computer Science with C++.

Gracenote, Chicago, IL August 2014 to March 2017

Senior Software Engineer

Develop real-time data update pipeline for transmitting changes from editorial systems and internal data sources (Sybase, PostgreSQL, Datomic, XML, JSON) to REST and Apache Avro/Thrift based web service API tier deployed on AWS cloud. Develop real-time customer specific update streams based on incoming real-time data streams. Multi-tier application developed in Scala, using Kafka/Confluent as the message queue and PostgreSQL/Redis as the persistence engines.

The data update system drives [Comcast X1](#) platform and is slated to become the primary platform for other customers such as DirecTV, Dish, Time Warner, Apple, Google etc.

Intellectual Ventures, Seattle, WA April 2015 to November 2015

Consultant

Develop application for Arduino platform to transmit air quality data gathered using Sharp GP2Y1010AU0F Optical Dust Sensor to Sidecar cloud API. Develop custom authentication and authorisation libraries (embedded C++) necessary to publish sensor data to Sidecar.

The University of Chicago Press, Chicago, IL April 2009 to July 2014

Senior Application Developer

- Developed online version of ["Scientific Style and Format"](#) 8th edition.
- Developed Single Sign On application and REST services for use by the online versions of Scientific Style and Format, ["The Chicago Manual of Style"](#) and the account management applications.
- Migrated Journals department content from Atypion content management system to Magnolia.
- Developed JIRA plugins to migrate PERL based Submission Manager process tracking application to JIRA.

- Developed new website for UCP using Magnolia CMS. Contributed documentation including source code to Magnolia Wiki based on custom modifications built for UCP. Developed custom background tasks to keep content in the JackRabbit repository in sync with various data sources – MS SQL Server database, MySQL databases, XML feeds, SOAP services etc. from various other divisions of the Press and the Library of Congress.
- Created XML manager desktop application used to generate web content for the [Chicago Manual of Style Online](#) product. Migrated CMOS Q&A content from XML files into Magnolia CMS.
- Migrated PHP based internal project tracking system to JSP and JasperReports.

Sans Pareil Technologies, Inc., Chicago, IL

January 2006 to December 2013

President & CEO

Founder, President & CEO of [SPT](#)¹. Owner of SPT, a self-owned company that develops custom desktop, mobile and web applications for customers and also develops open-source applications and frameworks.

- Software product development models and ideas.
- Creator and implementer of open-source projects as listed on [products](#)² page.
- Developed SPT core API's
 - Core persistence API using JDO and JPA,
 - Annotation based full-text search indexing of persistent objects using Lucene.
 - Annotation and reflection based bi-directional binding framework for applications built using Echo (and potentially Wicket).
- Develop applications for customers.
 - Develop custom social network platform
 - * Develop MongoDB backend document model for platform
 - * Develop C++ REST server using [Minnal Servlet Container](#)³
 - * Develop cross-platform (mobile and desktop) application using [Marmalade](#)⁴
 - Developed [iPad](#)⁵ and [iPhone](#)⁶ application for Toyota Machinery USA.
 - Developed event management application framework for Applitime. The framework was used to build the official iPhone and Android applications for Chicago Blues Fest, Taste of Chicago, Chicago Jazz Fest, The VooDoo experience, New Orleans Jazz Fest etc. Developed database update REST service used to keep the application database in sync with the data management system.
 - Developed iPhone Sudoku game for Kamicom. Developed game webservice for distributing new Sudoku games and for managing game solution times submitted by users.
 - Developed financial performance analysis software service for analysts of e-commerce websites.
 - * Develop Poco based C++ crawlers to gather sales data from e-commerce websites and store in Hypertable BigData database.
 - * Develop Qt application for analysts to view the historical sales data, plot and analyse trends.
 - Various Web 2.0 modules for Tribune Media Services using Google API, GWT, Echo, JDO, Lucene and Hibernate.
 - Desktop applications for LSA Studies using Qt. Developed MongoDB based distributed data storage and access framework for use by all applications.
 - Developed Clinical Leadership Database application for leading Pharmaceutical Industry client of PharmARC.
 - * Assisted with gap analysis of existing Key Opinion Leader (KOL) products and defining compelling feature set for presentation of Pharmaceutical company.

¹<http://sptci.com/>

²<http://sptci.com/products/>

³<http://sptci.com/docs/cpp/servletContainer.html>

⁴<http://www.madewithmarmalade.com/>

⁵<http://itunes.apple.com/us/app/toyoda/id454924445?mt=8>

⁶<http://itunes.apple.com/us/app/toyoda-sd/id471916388?mt=8>

- * Created architecture, design and technical specifications documents based upon business requirements.
- * Manage development and testing teams within company tasked with execution of the project.
- * Developed data model and persistence framework for the system using JDO.
- * Developed annotation based framework to automatically full-text index persistent objects using Lucene.
- * Developed data management application for maintaining and updating the database.
- Developed laboratory resource scheduling system and custom Radius Authentication server for Moraine Valley Community College.
 - * Create architecture, design and technical specifications documents for the application.
 - * Design database and high performance persistence API for the application using SQL/J stored procedures and POJOs.
 - * Developed custom FreeRADIUS module to use the application database for authentication and authorisation.

Tribune Media Services, Chicago, IL

June 2000 to January 2006

Senior Applications Developer/Core Tools

- Developed first version of TMS CoreLib middleware API that is used by all TMS inter/intranet applications for accessing TMS data stores (ODBMS, RDBMS, XML).
- Developed the TV Listings part of the NBC Winter Olympics 2006 site using the new architecture based on an ODBMS.
- Architected, designed and implemented move from a Relational Database Management System to a Object Database Management Ssystem. The migration resulted in performance increases ranging from 45-200 times that with an RDBMS.
- Architected, designed and developed client side data caching model using a variant of the DAO and Transfer Object patterns and an embedded database to offload load from the central database server.
- Architected, designed and developed a webservice for HP, that provided HP the ability to manage subscriber accounts via a secured communication channel. The webservices also supported direct subscription management functions designed to provide subscribers the ability to modify and manage their subscription.
- Architected, designed and developed the TV listings application and data management applications for NBC Olympics 2004.
- Architected, designed and developed TMS webservice designed to present Movie and TV data in XML format, conforming to schemas developed by TMS. Developed reference desktop clients and client API's using Qt/C++ to access the webservices.
- Developed the TMS standard XML schemas for TV and Movie related information.
- Architected, designed and developed a webservice for Philips iPronto/ProntoNeo/RC9800i devices. The webservice supports device authentication using HTTP-Digest, device activation, and dynamically generating customised TV Listings in an XML format conforming to the schema specified by Philips.
- Developed coding and documentation standards and application deployment processes.
- Architected, designed and developed the integrated Zap2it Toolkit Application which incorporates an enhanced Movie Toolkit Application (versions 1.0-3.0) and Internet Event Listings Application.
- Designed the Tribune Media Services Enterprise standard database model that is used by all editorial applications developed by TMS.

Net Quotient Consulting Group, Chicago, IL

September 1999 to May 2000

Software Developer

- Built user interface applications and back-end databases using Java and Vignette StoryServer based on functional specifications for New York Life.

- Assisted in creating prototypes and functional specifications for software projects involving New York Life.
- Assisted in developing technical methodologies for engineering solutions to Web-based development problems at Net Quotient.
- Assisted in meeting with client engineering personnel on specifics of projects, new technologies and deadlines.
- UNIX system administrator for the Chicago office.

IMI Systems Inc, Cincinnati, OH

February 1998 to September 1999

Consultant

- System Analyst, IBM Chicago, February 1999 to September 1999
 Consultant for IBM working at Blue Cross and Blue Shield Illinois. Responsibilities included:
 - Network Analysis. Identified all the UNIX application servers (Solaris 2.5/2.6, AIX 4.3.x) that comprised the Blue Cross and Blue Shield Illinois computing environment.
 - Software Analysis. Identified all software (local and third party) that were installed in the network, as well as all the locally developed databases (Oracle, Sybase, DB/2, Access).
 - Assisted in developing test plans for making sure that all software packages installed in the network were Y2K compliant.
 - Tools Analysis. Analyse and evaluate third party data management and test automation tools such as File-Aid/CS and WinRunner 2000.
 - Database Design. Designed and implemented a Project Tracking database in MS-Access to inventory results of the network and software analysis. Developed forms and reports to present summary of results for project tracking.
 - Project Management. Oversaw Y2K testing efforts for all UNIX hardware and UNIX based software applications and database servers at Blue Cross and Blue Shield.
- Consultant, Convergys Corporation, March 1998 to December 1998
 Y2K testing of the Precedent 2000 - a three-tier client/server Wireless Business Management and Billing system - software package developed by Convergys (formerly Cincinnati Bell Information Systems). Responsibilities included:
 - Desktop Application Development (65%):
 - * Developed a multi-threaded Windows application using Qt/C++ for the Usage Processing Subsystem of the Precedent 2000 system.
 - * Implemented numerous internal windows for viewing log files generated by the Precedent 2000 application.
 - * Implemented a SQL editor for users to run their own queries or execute PL/SQL stored procedures, and save queries as menu items. The result set from the database was converted into a table model and presented in spread-sheet format.
 - Y2K Testing (35%):
 - * Creating, selecting, editing and executing System and Y2K compliance test cases as they relate to the Key Business Processes and future releases of the Usage Processing Sub-System for Precedent 2000.
 - * Develop PERL, OraPERL and Korn-shell scripts for automating repetitive testing tasks.

Awards:

- **Diamond Award 2005 - Technology** - Awarded by [Tribune Media Services](#) (TMS) for excellence in Technology.
- **Spotlight Award 2003 - Technology** - Awarded by [Tribune Media Services](#) (TMS) for excellence in Technology.

Activities:

- [Chicago Java User Group](#) (CJUG) – Board Member (since 2007), President 2008–2009.
- Public speaker on Java technologies.
 - [Presentation⁷](#) at CJUG on [Echo](#) web application framework.
 - [Presentation⁸](#) at CJUG on object databases.
 - [Presentation⁹](#) at CJUG and [UniForum¹⁰ Chicago](#) on iPhone SDK.
 - [Presentation¹¹](#) at CJUG on Java Content Repository
 - [Presentation¹²](#) at CJUG on JackRabbit Configuration
 - [Presentation¹³](#) at CJUG on Google Data Store
- Creator and lead developer of open-source projects.
 - Developer of [uma::bson¹⁴](#) C++ BSON API and ODM framework.
 - Develop [Universal Mobile API \(UMA\)](#) C++ framework for cross-platform native application (Desktop and Mobile) development.
 - Lead developer of [EchoPoint¹⁵](#) component library for [Echo3](#) web application framework.
 - Developer of [MongoDB Viewer¹⁶](#) desktop and web applications.
 - Ported MongoDB C++ BSON library as a stand-alone static library for iOS.
 - Developer of [JCR Manager¹⁷](#) application.
 - Creator and implementer of [SPTODB¹⁸](#) object database engine.
 - * Present a JDO type interface for persisting objects using PrevaYler.
 - * Annotation based indexing and full-text search indexing of persistent objects.
 - Creator and implementer of [SPTRWT¹⁹](#) web based database application. Developed JDBC abstraction layer for use with different presentation frameworks such as Swing, Echo, Wicket etc.
 - Creator and implementer of [SPTWebMail²⁰](#) web based e-mail client.
 - * Developed new core API based on local mail store and Lucene indices
 - * Developed Lucene based local mail store for maintaining, message and folder metadata.
 - * Use Executor's and Future tasks to automatically synchronize Lucene indices with the mail store.
 - * Developed simple rules engine to manage and apply message processing rules.

Skills:

- **Programming:** C/C++, Java (JSE, JEE), Objective-C, Scala
- **GUI Development:** Qt, Cocoa/iOS UIKit, Android, AWT, Swing, Wt
- **Scripting:** Groovy, HTML, JavaScript, Oracle PL/SQL, SQL, PL/Pgsql, TCL, Bourne/Korn Shell
- **DBMS:** MongoDB, Google Data Store, HBase/Hypertable, Oracle 8i/9i/10g, PostgreSQL, MySQL, MS SQL Server, Java Embedded Databases, Java Object Databases, Java Content Repository
- **Operating Systems:** AIX 4.x/5.xL, FreeBSD, HP-UX 10.x/11.x, IRIX 5.3/6.x, Linux, Mac OS X, OSF/1, Solaris 2.6/7/8/9/10/11, Windows XP/7

⁷<http://sptci.com/products/articles/Echo2Presentation.pdf>

⁸<http://sptci.com/products/articles/ObjectDatabases.pdf>

⁹<http://sptci.com/products/articles/iPhoneSDK.pdf>

¹⁰<http://www.uniforum.chi.il.us/meetings/iPhoneSDK.html>

¹¹<http://sptci.com/products/articles/JCR.pdf>

¹²<http://sptci.com/products/articles/JackRabbit.pdf>

¹³<http://sptci.com/products/articles/GoogleDataStore.pdf>

¹⁴<https://freecode.com/projects/umabson>

¹⁵<http://java.net/projects/echopoint/>

¹⁶<http://kenai.com/projects/mongoviewer>

¹⁷<http://freecode.com/projects/spt-jcr-manager>

¹⁸<http://java.net/projects/sptodb/>

¹⁹<http://code.google.com/p/sptrwt/>

²⁰<http://java.net/projects/sptwebmail/>

- **Web Technologies:** Java Servlet and Java Server Pages, Echo, Google API, Google CTemplate, Freemarker, Wt, Poco CSP
- **WebService Technologies:** BSON, JSON, Apache Avro and Thrift, REST, SOAP, XML Schema

Certification/Training:

- Architecting and Designing J2EE™ Applications - April 2004
- XML 2002 Conference/Training - December 2002
- Sun Certified Programmer for the Java 2 Platform - February 2001
- Sun Enterprise Java Beans (EJB) - December 2000

Education:

Iowa State University, Ames, IA

January 1995 to December 1997

Graduate Student Assistant

MS Mechanical Engineering

- Advanced computer modelling and simulation of a Vuilleumier Heat Pump system using C++ in a UNIX environment (Ultrix, OSF/1, IRIX). Incorporated advanced models of heat exchangers and researched the effect of the irreversibilities introduced into the system by the heat exchangers.
- Developed a Motif GUI application, to execute the program with different operating conditions and different initial conditions.
- Worked with the FORMOSA software package (in FORTRAN) for the Optimisation of Nuclear Fuel Rod Assembly Design in a Boiling Water Reactor. Research into modelling changes required for converting the FORMOSA package which was developed for Pressurised Water Reactors, to work for Boiling Water Reactors.
- Teaching Assistant - Laser Cutting experiments using a Carbon-di-Oxide Laser; Thermal Analysis of the Iowa State University Nuclear Reactor; Experimental analysis of a Refrigerating and Air Conditioning Unit; Experimental analysis of an Axial Flow Fan.