# RICHARD BOYD

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***Like challenge of solving problems***

More Details in **Online Resume** at … <http://rem7.info/resume/>

### GOALS

Software Development or Teaching

Preference for,

* **F#**, **Clojure**, and Functional Programming
* **Hybrid** Programming … (C# + F#) … (Java + Clojure)
* .NET 4.0 suite of technologies
* Web based multimedia educational projects with AI backend (Intelligent Agent/Tutor)
* GIS related projects
* Telecommute opportunities

### CAREER

**Functional Projects**

* **F#** 3.0 exploration of Financial Trading data.
* **Clojure** Web Crawler to search Amazon media info.

**.NET Projects**

* Azure Cloud, Entity Framework, JSONP, Sencha Mobile Framework, Faro Scene 3D
* Convert complex algorithms from Mathematica to C#
* Microsoft project to connect .NET client to Java server via SOAP web services
* ASP.NET app to monitor Microsoft vendor/partners
* Silverlight/Bing kiosk for UW campus
* Silverlight/Flex UI and Web Services for utility district
* Embed F# within C#

Skills: .NET 4 experience with C#, Silverlight, LINQ, WPF, TFS, WCF, TPL, Bing Maps, Expression Blend, SketchFlow, VS 2012, SQL Server 2012, SQL Server 2008 Geospatial, GIS, Windows 8 Pro, Windows Server 2012.

**Java Projects**

* Real time weather application for NASA (Space Shuttle)
* Multicast IP Address to broadcast weather data
* Custom JavaBeans for visual and non-visual components
* FAA Prototype using ESBs
* Animation + audio for web-based educational software

Skills: Server, Middleware, UI, Servlets, JSP, Applets, Flex, Java2D

Agile style development in **Smalltalk** and **Lisp** was key part of my background.

The following were all part of the **Smalltalk** community, of which I was a member.

* design patterns
* unit testing
* agile development
* rapid prototyping
* short delivery cycles

I made transition to **Java** in 1996 and **C#** in 2003. **Hybrid** development with **Python**, **Ruby**, and **Groovy** … primarily embedded within Java.

PROJECTS

Dec 2012—Jun 2013

**Rich Geographic Internet Applications** *Seattle, WA*

*Remote Project*

Summary: **Convert project** from Silverlight to Mobile Framework (**Sencha**) … VS2012 MVC4, Web API, OData, JSON, JSONP, Entity Framework.

[Web Kiosk](http://www.rgia.org/) for University of Washington campus. Display assets … buildings, trees, piping, sewer, bollards, etc. Represent each asset visually and link to database for tracking, maintenance, deployment, monitoring. Allow Facilities crew to make onsite evaluation and instantly update central repository.

Skills:C# 4.5, VS2012, Azure Cloud, SQL Server 2012, LINQ, IIS, Web Services, ESRI, GIS Spatial Data, Entity Framework, Stored Procedures, MVC4, JavaScript, HTML5, CSS3, Sencha Touch, XAMPP, Firebug, ExtJS, jQuery, Aptana Studio 3, Windows 8 Professional, Windows Server 2012, Faro Scene 3D Software, NuGet Package Mgr., Json.NET, Fiddler.

Jun 2012 – Oct 2012

**GeoEngineers** *Tacoma, WA*

Web Applications Developer

*Remote Project*

Summary: [GeoEngineers](http://www.geoengineers.com/) specializes in environmental, ecological and geotechnical solutions for the Water and Natural Resources, Transportation, Energy, Federal and Development markets. I was hired for a *casual, on-call position* to develop desktop, web and/or mobile applications … integrate applications with databases and GIS applications … develop web services, and enterprise solutions using ESRI’s Adobe Flex API, JavaScript API, and Microsoft Silverlight API.

Skills:C# 4.0, VS2010, SQL Server 2008, LINQ, Expression Blend 4, IIS, Web Services, ESRI, GIS Spatial Data, Entity Framework, MVC4 Roles, XAML, JavaScript, HTML, CSS.

Mar 2011 – Feb 2012

**Weston Solutions** *Seattle, WA & Rancho Cucamonga, CA* **(via Techstaff** *Seattle, WA***)**

*Remote Project*

**Summary**: [Cucamonga Valley Water District](http://www.cvwdwater.com/): Needed to add a section to their website where a customer could enter a Service Request and track its Status. A Silverlight app was built that is embedded within current site. Bing Map allows user to locate request. Employed GIS to Reverse Geolocate map point/street address. Web Service backend for Request Categories, Questions, Answers, Instructions, and Comments. Confirmation Page summarizes Request. Email provides link for customer to monitor Status of request.

**Skills**:Silverlight 4.0, C# 4.0, VS2010, SQL Server 2008 Geospatial, LINQ, Expression Blend 4, SketchFlow, Bing maps, IIS, Web Services, ESRI Shapefiles, GIS Spatial Data.

May 2011 – Dec 2011

**InfoHarvest** *Seattle, WA*

*Remote Project*

**Summary**: [InfoHarvest](http://www.infoharvest.com): Developed visual tool that assists making complex decisions. Current work is in conjunction with the [Redlands Institute](http://www.redlands.edu/innovation-research/7417.aspx) which conducts applied research into complex environmental and social systems using GIS and associated technologies. Core decision making technology is written in VB. Goal of this project is to update to C# and current .NET Framework. Convert WinForms to XAML. Use ObservableCollection to decouple bindings. **Problem**: Dynamically select database at runtime, but LINQ needs to do database mapping at compile time. **Solution**: ADO.NET creates DataSet … then query via *LINQ to DataSet*.

**Skills**:C# 4.0, VB6, VS2010, SQL Server Compact, LINQ, WPF

Jan 2011- Mar 2011

**Intellacuity** *Dallas, TX* **(via Consultis** *Dallas, TX***)**

*Remote Project*

**Summary**: Create application for Capstone Metering (CM) to monitor and manage their smart water meter. Business Analytics has Adobe Flex interface, so UI built in Flex. Prototype was built in SketchFlow. Data was read from SQL Server 2008 and parsed with C#, LINQ, RegEx. Create web services (\*.asmx) in VS2010. Construct water meter widget using ActionScript. Pushpins and Info popups were inserted on Google Map. Live WebCam. UI was iPhone-like display.

**Skills**:Adobe Flex, ActionScript, C#, VS2010, LINQ, Google Map, Expression Blend, SketchFlow, SQL Server 2008, Web Services.

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Fall 2009—Nov 2010

**Rich Geographic Internet Applications** *Seattle, WA*

*Remote Project*

## Director Research & Development

**Summary**: [Web Kiosk](http://www.rgia.org/) for University of Washington campus. Display assets … buildings, trees, piping, sewer, bollards, etc. Represent each asset visually and link to database for tracking, maintenance, deployment, monitoring. Allow Facilities crew to make onsite evaluation and instantly update central repository. Original project in Open Laszlo + Google Maps. Convert to Adobe Flex + ESRI Maps. Because of performance (thousands of icons), convert to Silverlight + Bing Maps.

**Skills**: VS2010, SQL Server 2008, Silverlight 4, XAML, LINQ, RegEx, C#, F#, WCF, Web Services, WPF Expression Blend 4, SketchFlow, TFS, ESRI Maps, Bing Maps, Shibboleth … Java, Flex 3/4, Flash, ActionScript, Red5 Media Server, Tomcat.

Sept 2003--Feb2004

**InfoHarvest** *Seattle, WA*

**Summary**: [WOPR](http://www.daylightdecisions.com/ddweb/WOPR_Report.pdf): Bureau of Land Mgmt developed plan to manage Oregon lands. Build website to gather feedback/comments from residents so that [InfoHarvest](http://www.infoharvest.com/) Decision Analysis could be used on results to enable fine-tuning of plan. **MSFT:** Build website for Microsoft, using Decision Analysis techniques, to monitor Microsoft vendor/partners in order to determine needs/wants/issues.

**Skills**: C#, ASP.NET, VS2003, SQL Server 2005.

July 2003--Sept 2003

**WIRB** *Olympia, WA*

**Summary**: [WIRB](http://www.wirb.com/): Research and Review of FDA related products, processes, regulations. Ensure compliance. WIRB was early adopter of beta VB.NET to automate process. New system of 500,000 lines of VB.NET code suffered from severe memory leaks that [WIRB](http://www.wirb.com/) had worked with Microsoft for about six months, and were unable to solve. I debugged the system and found 163 classes that were creating instances which were never garbage collected. Fix resulted in considerable improvement in performance.

**Skills**: VB.NET, VS2003, SQL Server, PerfMon, Memory Profiler

Apr 2003—Jun 2003

**ScienceOps** *Lynnwood, WA*

(Contract via **Saltmine** *Seattle, WA*)

**Summary**: [ScienceOps](http://www.scienceops.com/): PhDs only consulting firm that develops algorithms and tackles complex problems that no one else in the area would be able to solve. This particular project involved calculating the optimal layout for long strips of 2 inch wide electrical floor heating elements … in order to cover the most floor area with the least waste. The client was off-shoring this work to teams in India, to solve manually … which resulted usually in a 24 hour delay. Client wanted computerized system to solve problem “instantly” while customer was still in showroom. Solution was solved and prototyped in Mathematica, then converted to C# and put on the web.

**Skills**: .NET, C#, C++, XML, Mathematica.

2003

**InfoHarvest** (part-time) *Seattle, WA*

**Summary**: [Criterium DecisionPlus](http://www.infoharvest.com/ihroot/infoharv/products.asp#CDP30) software applies structured methodology to decision making. Originally written in older VB, it needed upgrade to new .NET Framework. Developed partial upgrade of key components … enough to get system functional.

**Skills**: C#, VB.NET, ASP.NET, ADO.NET, VB6, COM, Web Services, SQL Server.

Nov 2002—Jan 2003

**Mircosoft** *Redmond, WA*

*(Contract via* ***Saltmine*** *Seattle, WA*)

**Summary**: [Microsoft](http://www.microsoft.com/) had client who wanted to link their Java environment to a .NET client. Several developers were contacted about this project, but decided the timeframe was too short. I accepted the “challenge” and brought in a PhD friend who helped me build a .NET client that used SOAP to communicate with a Java server running the standard [Java Pet Store](http://java.sun.com/developer/releases/petstore/) demo. Prototype system was built running on RS6000 using AIX and DB2. Much coding was done in Notepad while browsing [W3C](http://www.w3.org/TR/soap/) standards. Prototype was finished on time, and was a real challenge.

**Skills**: VB.NET, Java, JDBC, JSP, Web Services, SOAP, XML, HTTP, WebSphere, AIX UNIX, RS6000, DB2, Redhat Linux, Session/Entity Beans.

Jan 2001—Mar 2002

**Advanced Biometrics** *Tacoma, WA*

*Mgr R&D / Architect / Developer*

**Summary**: [Advanced Biometrics](http://www.ereleases.com/pr/advanced-biometrics-employees-file-suit-against-company-in-federal-court-1032): Patent for using infrared to read subsurface blood vessels in palm of hand. Project was essentially a *subsurface fingerprint* of the hand. Think of those hand scans in science fiction movies. Between time I was hired, and time I started, the technical people left the company. I suddenly became in charge of technology. I built team to develop algorithms for pattern recognition of combination of surface features of palm along with subsurface blood vessels. The prototype was built using Microsoft Visual C++. By that time, poor management of company finances resulted in lawsuits. Company was bought out and it moved to another state.

**Skills**: C/C++, Python, Biometrics, XP.

F# / CLOJURE

Mar 2012 – Present

Startup Project – off-hours

**Summary**: Financial Trading application to discover hidden patterns and cycles within the financial markets through use of mathematical relationships (Fibonacci & Lucas Numbers, etc.), Gann Theory, Elliott Waves, Genetic Algorithms, and Parallel Processing. Use **F# 3.0** for analysis, **F# Type Provider** for data and services, **FSharpChart** for display of results. **TPL** for parallel processing.

**Skills**:F# 3.0, F# Type Providers, FSharpChart, .NET 4.0, TPL, LINQ, SQL Server Compact, Genetic Algorithms, Functional Programming, Financial Algorithms.

Feb 2012 – Mar 2012

Short Startup Project

**Summary**: Build Web Crawler to search Amazon for media titles/info. Amazon API was too restrictive for client usage … so build tool to dynamically call searches based on movie titles read from **MySQL** database. Code in **Clojure** using **regex** for filtering. **GNU Wget** for retrieving files. **Git** for version control. **Leiningen** for automation and build. **IntelliJ** + **La Clojure** as IDE. **Korma** is Clojure DSL for working with MySQL. **Hiccup** for representing HTML in Clojure. **Enlive**, using CSS-like selectors, as extraction and transformation library for HTML and XML docs written in Clojure. **Fiddler2** and **Firebug** for debugging. Half of project time was spent getting back up-to-speed in my Lisp from 1980’s! … and setting up environment for open source tools.

**Skills**:Clojure, regex, MySQL, Wget, GIT, Leiningen, IntelliJ, La Clojure, Korma, Hiccup, Enlive, Fiddler2, Firebug.

GIS

**Summary**:

[Cucamonga Valley Water District](http://www.cvwdwater.com/) (CVWD) is a retail water provider serving 185,000 customers within a 47 square mile area. A Silverlight app was built using **Bing** Map to allow users to locate requests. GIS to Reverse Geolocate map point/street Address. Convert **ESRI** Shapefile to SQL Server 2008 Spatial GML format using Shape2SQL tool. Implement algorithm, using polygon created from boundary points, to calculate if an address lies within or outside CVWD Service Area.

For Redlands Institute, work on decision analysis UI to interface complex environmental systems with **GIS**.

Create app for Capstone Metering to monitor and manage smart water meter. Create Pushpins and Info Popups on **Google** Map via Google Flash API. Live WebCam.

Build rich interactive mapping application for University of Washington campus to locate and plot assets and link to databases for tracking, maintenance, deployment, and monitoring. Convert OpenLaszlo + **GoogleMap** … to Flex/Flash/ActionScript + **ESRI** Maps. Convert Flex … to Silverlight + ESRI Maps because of performance (Flex single threaded vs. Silverlight multi-threaded). Modify **Basemap** to incorporate both ESRI and Bing mapping. From parsed XML, render **Points**, **Lines**, **Polygons** on **Map Layers** to represent features such as trees, bollards, water/sewer/high pressure lines, buildings, parking lots.

**Skills**: Bing Maps, ESRI Maps, ESRI Shapefiles, SQL Server 2008 Spatial, Shape2SQL, GIS Spatial Data, Google Maps.

EDUCATION

University of Arizona - Tucson, AZ

**PhD Geophysical Engineering -- 3.9 GPA**

University of Arizona - Tucson, AZ

**M.S. Electrical and Computer Engineering -- 3.9 GPA**

University of Washington - Seattle, WA

**B.S. Aeronautical Engineering**

CURRENT INTERESTS

* F#, Clojure, Functional Programming, Hybrid Programming
* Intelligent Agents, Uncertainty, Simulation, Graphics
* Silverlight/WPF/HTML5, LINQ/PLINQ, Entity Framework, Type Providers
* TPL Parallel Programming
* GIS