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## ***Principal Software Engineer/Architect***

### **EXPERIENCE SUMMARY:**

Over 20 years experience in architecture and development of intelligence-related and commercial software applications, primarily using Java, Scala, and semantic ontology development. Possesses in-depth knowledge at an expert level in software engineering, requirement and architecture development and systems analysis. Extensive experience in object-oriented design, functional programming, distributed and multi-threaded systems. Extremely intuitive and proficient in solving difficult software implementation challenges. Experienced team lead and former director of the corporate Mentor-Protégé program – providing invaluable leadership for a program that guides, trains and provides career growth opportunities for software engineers within the company.

<b>Technical Skill Highlights</b>			
<b>Years:</b>	<b>+8</b>	<b>+4</b>	<b>+2</b>
<b>Software/Languages</b>	<ul style="list-style-type: none"> <li>• java</li> <li>• perl</li> <li>• ruby</li> <li>• javascript</li> <li>• bash</li> </ul>	<ul style="list-style-type: none"> <li>• groovy</li> <li>• python</li> <li>• scala</li> </ul>	<ul style="list-style-type: none"> <li>• c#</li> <li>• spade</li> <li>• spl</li> </ul>
<b>Database</b>	<ul style="list-style-type: none"> <li>• oracle</li> <li>• postgres</li> <li>• mysql</li> </ul>	<ul style="list-style-type: none"> <li>• mongodb</li> </ul>	<ul style="list-style-type: none"> <li>• aerospike</li> <li>• Cassandra</li> <li>• hbase</li> <li>• elasticsearch</li> <li>• dynamo</li> <li>• influxdb</li> </ul>
<b>FE Applications</b>	<ul style="list-style-type: none"> <li>• html</li> <li>• css</li> <li>• swing</li> <li>• servlets/js</li> </ul>	<ul style="list-style-type: none"> <li>• struts</li> <li>• cocoon</li> <li>• eclipse rich application platform (rap)</li> <li>• flex 2/3</li> </ul>	<ul style="list-style-type: none"> <li>• tapestry</li> <li>• jsf</li> <li>• portlets (JSR-168)</li> <li>• velocity</li> <li>• play</li> <li>• rails</li> </ul>
<b>BE Technologies</b>	<ul style="list-style-type: none"> <li>• spring</li> <li>• rest</li> <li>• json</li> <li>• xml/xpath/xsd</li> <li>• osgi</li> <li>• hibernate/jpa</li> </ul>	<ul style="list-style-type: none"> <li>• jini/rio</li> <li>• jsxb</li> <li>• rdf/owl</li> <li>• snmp/cim</li> <li>• protobuf</li> <li>• jenkins</li> </ul>	<ul style="list-style-type: none"> <li>• hadoop</li> <li>• docker</li> <li>• slick</li> <li>• akka</li> <li>• antlr</li> <li>• elasticsearch</li> </ul>
<b>Platforms/Operating Systems</b>	<ul style="list-style-type: none"> <li>• Mac OS X 10.4+</li> <li>• Linux</li> <li>• Windows (all versions)</li> </ul>		
<b>Tools/Applications</b>	<ul style="list-style-type: none"> <li>• gradle</li> <li>• apache</li> <li>• maven</li> <li>• tomcat</li> <li>• atlassian Suite</li> <li>• git</li> </ul>	<ul style="list-style-type: none"> <li>• glassfish</li> <li>• orion</li> <li>• weblogic</li> <li>• subversion</li> <li>• cvs</li> </ul>	<ul style="list-style-type: none"> <li>• netbeans</li> <li>• android development kit</li> <li>• sbt</li> <li>• grafana</li> <li>• graphite</li> </ul>
<b>Leadership</b>	<ul style="list-style-type: none"> <li>• Technical Leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Project Management</li> </ul>	

## James Birchfield (continued)

### EDUCATION AND CONTINUED PROFESSIONAL DEVELOPMENT:

- Computer Science, Manchester College, 1994
- JavaOne Training, 1999
- XMLOne Training, 2000
- PMP, 2007
- UberConf, 2011
- JavaPosse Roundup, 2013
- Spring 5 Guru, 2017
- GitHub - <https://github.com/birchsport>
- Bitbucket - <https://bitbucket.org/birchsport>
- fast.ai - International Fellowship Part 2 <http://course.fast.ai/>

### WORK EXPERIENCE:

#### **ShopStyle**

**September 2015 – Present**

##### **Senior Software Engineer**

- Led the integration and deployment efforts of a new production system leveraging Docker and AWS Beanstalk.
- Introduced the team to Scala and Camel as an integration platform.
- Implemented several new email message types resulting in millions of email deliveries per day.
- Provided integration strategies for multiple email service providers ensuring all subscription and whitelist information is updated in near real-time.
- Optimized an ETL process populating transaction data into Elasticsearch. Tasks included refactoring the indexing scheme, shard sizes, field mapping, and query analysis.

**Technologies Utilized: Scala, Java, Camel, MongoDB, SQS, Cassandra, JSON, Docker, Beanstalk, Grafana, Akka, Graphite, Elasticsearch, Hibernate/JPA**

#### **StumbleUpon**

**September 2013 – August 2015**

##### **Senior Software Engineer**

- Led the data analysis effort to both quantify and qualify the data we have, and determine if the datastore in which it resides is appropriate.
- Prepared many usage pattern visualizations and reports to help other engineers and scientists to better understand the entire data corpus.
- Worked on the Messaging Service Team which handled all aspects of email within the company. This team was responsible for sending one million plus emails per day both in batch and transactional modes. Handled all the finer messaging aspects such as bot filtering, address validation/verification, complaint mitigation, and frequency capping.
- Technology stack was primarily Scala using the Camel framework, HBase, MongoDB, and RabbitMQ.
- Worked across teams to develop our applications as a loosely coupled set of micro-services. The base framework was built using Spray and Akka.
- Fully automated deployment using Atlassian Bamboo and Docker containers.
- Extensive real-time monitoring of hundreds of metrics within the deployment (New Relic, InfluxDB, Grafana, JMX)

**Technologies Utilized: Scala, Java, Camel, Hadoop, HBase, MongoDB, RabbitMQ, Cassandra, JSON, Protobuf, JMX, Hive, Zookeeper, Docker, InfluxDB, Grafana, Akka, Spray, Slick, Micro-services**

## James Birchfield (continued)

### **Mission Data**

**March 2012 – August 2013**

#### **Principal Software Engineer**

- Lead architect on a large-scale survey and reporting system used by over 500 hospitals throughout the country
- Android development lead for a query, reporting, and tracking application for use by truck drivers for a national trucking company
- Lead developer for a University of Louisville research department focusing on finding toxic/cancerous molecule combinations by building and interrogating complex chemical models
- Expert consultant and lead architect/developer for Papa John's infrastructure team which is responsible for hardware and software deployments to all of the near 4,000 Papa John's stores worldwide.

**Technologies Utilized: JPA, Struts, Spring, Android Development Kit, Ruby on Rails, Ruby, Java, C++, Jasper Reports, JSON, Ext JS (Sencha), Puppet**

### **Proteus Technologies, LLC**

**January 2002 – February 2012**

#### **Principal Software Engineer**

- Designed and implemented a Social Network Algorithms API which sits on top of the Blueprints property graph API
- Resident Subject Matter Expert for ontological and semantic vocabulary design
- Designed and implemented the Manifest Mart which allows a common way to represent and/or define the semantics and structure of a model representing data centers using CIM and OWL
- Designed and implemented the next generation of the Contract with Developers (CwD) OWL based ontology using heavy Common Information Model (CIM) semantics and structure
- Refactored, rehosted, and added full reification support to an open-source Java/OWL code generation API
- Helped develop a high-speed triple/quad store using HBase/Hadoop.
- Designed and developed various operators and software components for the IBM InfoSphere Streams (DISTILLERY) platform specifically focused on discovering and cataloging hardware and software resources for Enterprise Management
- Built, installed, configured, and deployed a self-hosted Git source control system based on the open-source Gitorious project
- Utilized the Puppet provisioning system to ensure uniform and consistent hardware and software monitoring applications were deployed to over 90 systems within our development cloud
- Designed and implemented the CwD XSD based schema providing a common vocabulary to describe system metrics, measurements and resources across the program
- Researched, prototyped, designed, and implemented an Oracle 11g XMLDB based storage solution for all data elements collected from the instrumentation of the program
- Designed and implemented a high-performance ingest system to populate the XMLDB database
- Prototyped and provided initial design and implementation of the Eclipse and Flex based visualization systems for the program
- Designed and implemented an OSGi based scripting engine providing simple instrumentation of resources by non-developers
- Redesigned and implemented the modernized groundstation using an Enterprise Service Bus (ESB) architecture
- Participated in writing a white-paper for the Eclipse foundation describing the advanced visualization solutions being developed for the project using the Eclipse Tools Platform
- Technical Lead for the Monitoring and Metrics modernization. Architected, designed, and developed framework for this project

## James Birchfield (continued)

- Architected and developed the data ingest service utilizing the Jini/RIO infrastructure for the program
- Core developer of the services module providing a single API for managing federated queries and result set management
- Instituted a robust, multiple module build system using Ant providing platform-dependent builds and transitive dependency management
- Designed and implemented an XML Schema metadata service exposing all aspects of the system's object model metadata
- Participated as an expert consultant to the WebSA II team. This effort provided an upgraded architecture for the original WebSA tool utilizing JMX and Jini
- Technical strategist for APOD (Aggregated Portlets on Demand) IR&D effort. APOD is a health and status monitoring capability which provides for the management of software services residing on a network. The APOD framework facilitates the dynamic creation of portlets which are then centralized, and plugged into a portal console
- Prototyped a peer-to-peer, agent based, threat assessment framework using Jini technology
- Developed several different prototypes for a document management/distribution system using Jini and Ice (Internet Communication Engine)

***Technologies Utilized: IBM InfoSphere Streams (DISTILLERY), OWL, RDF, CIM, HBase, Hadoop, Streams Processing, Jini, RIO, JMX, JMS, ICE, SOAP, XML, Spring, Weblogic, JBoss, XMLBeans, PERL, Groovy, C++, Struts, JSF, MetaMatrix (federated query), Hibernate, Ant, Maven, Portlets (JSR-168), WSRP, Git, Subversion***

### **Genscape**

**2002 - 2004**

#### **Director, Application Development**

- Lead architect and developer for a real-time, Flash based monitoring application, which delivered up-to-the-minute power plant output information.
- Prototyped real-time data acquisition and processing system using Jini and JavaSpaces
- Prototyped real-time, GIS application using C# and Microsoft's MapPoint
- Implemented real-time energy information exchange web services using Axis and Jetty.
- Researched and established the company's source code control system.
- Designed and implemented the company's build and deployment system.

***Technologies Utilized: Java, JBoss, JMX, C#, Flash, ActionScript, SOAP, Axis, Jini, JavaSpaces, Struts, Tapestry, Maven, Subversion***

### **Ironmax**

**2000 - 2002**

#### **Senior Software Engineer/Integration Manager**

- Lead architect for a large B2B portal utilizing J2EE
- Integration Manager for all company web-based projects and products
- Designed and implemented a generic architecture supporting a Virtual Private Network for the construction equipment industry
- Ported a PL/SQL based system into a fully J2EE compliant system utilizing the latest EJB standards
- Prototyped WML based interfaces to web-based, enterprise applications
- Prototyped J2ME based applications for information gathering and storage applications
- Prototyped several web services utilizing the SOAP specification
- Created flow diagrams that capture business processes using Visio

***Technologies Utilized: Orion, EJB, Struts, XML, XSLT, PL/SQL, SOAP, HTML, WML***

## **James Birchfield (continued)**

### **Scientific & Engineering Solutions Inc.**

**1999 - 2000**

#### **Software Engineer**

- Implemented wireless handheld device solutions using the WML/HDML languages and Java Server Pages technologies
- Evolved several, mostly static, HTML websites into XML/XSL powered websites
- Developed distributed applications using different Message Oriented Middleware (MOM) products (ActiveWorks, xmlBlaster)
- Performed major re-writes of servlet and CGI based applications into a more flexible JSP/Java Beans based solution
- Active contributor to the Cocoon open source project sponsored by the Apache Software Foundation. This support includes a custom tag library and processors for email and LDAP servers

**Technologies Utilized: Cocoon, XML, XSL, Apache, CGI, Perl, MOM, HTML, HDML, WML, JSP, Servlets**

### **BTG Inc.**

**1998 - 1999**

#### **Software Engineer**

- Designed and implemented a secure, web-based remote monitoring architecture utilizing the Secure Socket Layer (SSL) protocol with both the Apache and Netscape Enterprise web servers
- Extensive object oriented design using Java and PERL
- Developed custom XML tracking system with a robustly designed Document Type Definition (DTD)
- Extensive design and coding of Java servlets
- Designed a statistical analysis tool with the GUI designed in Java3D

**Technologies Utilized: VRML, Java3D, JDBC, XML, DTD, PERL, SSL, Apache**

### **GTE Government Systems**

**1996 - 1998**

#### **Junior Software Engineer**

- Designed and developed a high-level, web-based systems administration tool for use with over 300 systems
- Designed and developed a graphical system administration monitoring tool written in Java and PERL
- Coordinated and maintained three web-based software deployment sites
- Served as webmaster and responsible for 20+ systems all using the Apache web server
- Prototyped systems administration tools utilizing VRML's 3D capabilities

**Technologies Utilized: Apache, SSL, CGI, PERL, VRML, Java**

### **US Army**

**1993 -1996**

#### **Cryptanalyst/Programmer**

- Performed software engineering tasks to provide time-critical data related to intelligence systems
- Performed data analysis and designed and developed system level code
- Developed technical documentation as required to support operational products

**Technologies Utilized: CSH, BASH, C**