

Experience

Commonwealth Computer Research, Charlottesville, VA

Sr. Software Engineer and Technical Lead: August 2011 to Present

- Lead development of the Simple Warning Instant Forecasting Tool (SWIFT), an advanced geospatial predictive analysis tool for small units with limited computing resources.
- Designed and architected the overall software system including data storage and retrieval, analytical services, and user interface design.
- Transitioned capabilities of SWIFT and another similar piece of software into one predictive analysis platform capable of running on multiple architectures including an Accumulo/Hadoop cloud architecture and a PostgreSQL local architecture.
- Implemented core predictive algorithms and software services.
- Prepared for and executed demonstrations of new capabilities in an operational environment.
- Worked with customers to determine requirements and interact with external applications.
- Designed and contributed to development of an Android-based mobile application.
- Contributed to research and testing of new predictive algorithms.
- Oversaw the team of three to twelve engineers using an agile sprint-based approach.
- Worked with other internal projects to maximize efficiency and align our corporate vision.
- Set up and maintained development infrastructure such as continuous integration servers.
- Involved in training, developing, and evaluating employees and interns.
- Contributed to the extraction of specific services into an open-source application, GeoMesa, a spatio-temporal index for Accumulo.
- Wrote and contributed to successful proposals for new research and software development contracts.

Software Engineer: October 2008 to August 2011

- Developed a system for the Navy to model enemy learning using geospatial and event data to predict the time and location of events, including enemy attacks, and track the associated changes in tactics.
- Developed a system for the Army which used GIS technologies and predictive analysis techniques to provide threat assessments to deployed units.
- Performed predictive analysis using the R statistical computing language.
- Used Java EE, web services, and open-source GIS tools such as PostGIS and Geoserver.
- Developed an advanced JavaScript-based user interface to present predictions to analysts.
- Contributed to project demonstrations and documentation.

Science Applications International Corporation, Charlottesville, VA

Software Application Engineer: October 2007 to October 2008

- Designed and implemented advanced text and data mining search tools.
- Improved a web service for auditing application operations according to government standards.
- Improved a Microsoft .NET client program accessing search tools through web services.
- Adapted an existing Java Web Start Client and Java EE Server application to the security constraints of a dual domain system based on Oracle technologies, routing all communication through a protected server and enabling geospatial queries using row level security.
- Designed and began prototyping a next-generation search product combining functionality from three existing search tools into one horizontally-integrated, modular, extensible application.
 - Built using an array of Java EE and SOA technologies including an Enterprise Service Bus.

Nonprofit Organization

Regional I.T. Director and Web Developer: August 2006 to August 2007

- Served as Regional I.T. Director during the six month absence of the permanent I.T. director.
- Oversaw the install, training, and auditing of security software on staff computers in the region.
- Oversaw a team of I.T. coordinators who helped in implementing the above goals.
- Developed a website using Drupal and PHP for use by staff in the region.
- Developed web applications using PHP for managing various financial transactions.

Image Matters LLC, Leesburg, VA

Java Software Development Intern: May 2004 to January 2005

- Designed software modules using use cases and UML and built Java EE web services.

- Designed and implemented a service providing standardized access to sensor networks.
- Designed and implemented a module that provided generic data filtering.

Skills

Programming Languages (Advanced): Scala, Java, Groovy, R

Programming Languages (Proficient): JavaScript, HTML/CSS, shell scripting, SQL, PL/pgSQL

Programming Languages (Basic Exposure): C/C++, PHP, VHDL, C#

Java Technologies: Spring, Java EE/EJB, Java Persistence/Hibernate, JSP, JMS, JAXB, JAX-WS, JBoss, Apache Tomcat, Jetty, Apache Axis, Java Web Start, Tapestry, JDOM, Android

Web Technologies: XML, Web Services, SOA, Enterprise Service Buses, ServiceMix, SOAP, ExtJS, OWL, Protégé, RDF, OpenRDF Sesame, Apache, Microsoft IIS, Drupal CMS, ActiveMQ

Cloud Technologies: Hadoop, YARN & Map/Reduce, Accumulo, Oozie, Storm, Kafka, GeoMesa

Data Storage: PostgreSQL, PostGIS, MySQL, Oracle/Oracle Spatial, NetCDF

Geospatial Technologies: Geoserver, OpenLayers, Quantum GIS, ArcGIS, ArcIMS

Development Tools: Git, JIRA, IntelliJ, Netbeans, Maven, Subversion, CVS, Perforce, Visual Studio, Eclipse (Java and PHP), Ant, Vim, Cygwin, Confluence, twiki, Bugzilla, Linux/Unix, UML

Education

University of Virginia

School of Engineering and Applied Science

Charlottesville, VA; May 2005

B.S. with High Distinction in *Computer Engineering* and *Computer Science*

- GPA: 3.76 out of 4.00; Dean's List (Fall 2001 to Spring 2004); Intermediate Honors

Piedmont Virginia Community College: Completed *Statistics (MTH 240)* in Summer 2010

University of Virginia: Unofficial Audit of *Linear Statistical Models (SYS 4021/6021)* in Fall 2011

École Polytechnique Fédérale de Lausanne: Completed *Functional Programming Principles in Scala* in Fall 2012 and *Principles of Reactive Programming* in Winter 2013/2014