

# Andrew Gagne

Email: andrew@andrewgagne.net  
Phone: (617) 571 - 7784

Address: Seattle, Washington

A solution-oriented, adaptable, problem-solving software engineer with a decade of experience in a fast-paced, high-pressure, technology-driven environment. Experience optimizing process, developing tools, and troubleshooting the integration of cutting-edge scientific instrumentation into a high-throughput production facility. Passionate about learning new technologies, domains, and techniques to develop customer-centric solutions to real-world problems.

Languages: Java, Python, Scala, SQL, JavaScript, JSP, HTML, CSS  
Frameworks: Struts2, Hibernate, Spring, jQuery, Spray, Akka

## Professional Experience

### Harvard Medical School

Department of Genetics, Biopolymers Facility  
*Director of Computing / Senior Software Engineer*

**Boston, MA**

5/2006 - Present

Responsible for all computing within a core facility that supports hundreds of labs and thousands of researchers. Duties include software development; server and database management; development of informatics pipelines for data processing and analysis; release management; and supervising a small software engineering team. Software projects include front-end web development; server-side Java development; distributed computing development in python for a 5500+ node HPC environment.

#### Laboratory Information Management System (LIMS) - <http://genome.med.harvard.edu>

**Java, Struts2, Spring, Hibernate, JavaScript, jQuery, Freemarker, HTML, CSS, Oracle, SQL, AJAX**

Lead architect and developer on large web-based system that contains experiment ordering, experiment tracking, inventory management, account management, interacting with LSF cluster for data processing, automated processing orders from external vendors, calendaring system, quality control reports, financial reports, and invoicing. Responsible for all aspects of system including server hardware, gathering requirements, database design, system architecture, implementing server-side & client-side features, fixing bugs, optimizing SQL/HQL, and testing.

#### Manage Computing Staff

Manage software engineers in providing computing solutions for the lab. Interface with laboratory scientists to gather requirements and use cases, design user interfaces, and process improvements for the lab needs. Lead engineering team in database design and system architecture for the new features. Adapt to rapidly changing requirements with iterative development and rapid prototyping.

#### NextGen Sequencing (NGS) Data Processing Pipeline

**Python, LSF, FastQC, FastqScreen, RSeQC, Bowtie, ImageMagick**

Designed and developed python programs to process Illumina NGS data, generate QC reports, manage data distribution and archiving. Pipeline routinely processes hundreds of samples in parallel on an LSF high performance cluster.

#### Informatics

**FastQc, FastqScreen, RSeQC, Picard, SAMtools, Bowtie, TopHat, Cufflinks, FASTX-Toolkit, Galaxy, bcbio-nextgen**

Interacted with researchers to solve many informatics requirements. Researched and developed scripts to support ad hoc user requests utilizing a variety bioinformatics tools. Worked with lab technicians to troubleshoot failed experiments. Assisted researchers in improving maintainability and performance optimization of scripts.

#### Custom Software Lab Solutions

**Python, Java, Bash, PowerShell**

Designed and developed custom software solutions for lab needs including temperature monitoring software for freezers, data management scripts for instruments, and email notifications when instruments required interaction.

#### LIMS Rearchitecture / JSP Scriplet to Struts2 MVC Migration

**Java, Struts2, Spring, Hibernate, JavaScript, jQuery, Freemarker, HTML, CSS, Oracle, SQL**

Designed and migrated LIMS website into a new technology stack, converting hundreds of web pages into a Struts2 MVC architecture.

### **Infrastructure and Development Environment**

**Subversion, Mantis, Hudson, Twiki, Windows Server, Linux**

Instituted modern tools and methodologies to increase the maturity of the software development process within the lab. Implemented use of Subversion source control, Hudson continuous integration server, Mantis bug tracking, and Twiki wiki. Created separate development, test, and production instances for Oracle database. In conjunction with HMS IT migrated servers to a managed infrastructure, while offloading server backups, email hosting, and system administration duties to a separate sysadmin group.

## Education

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### **Harvard University**

Related Courses: Concurrent Programming in Scala, Bioinformatics Algorithms, Visualization, Principles of Genetics

### **Northeastern University**

Bachelor of Science in Computer Science, 2006

Related Courses: Object Oriented Design, Software Design and Development, Networking, Theory of Computation, Programming Languages, Algorithms and Data Structures, Database Design, Operating Systems, Web Services, Artificial Intelligence

Honors: Honors Program, Cum Laude

Activities: Association for Computing Machinery

## Internships

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### **Harvard Medical School**

Department of Genetics, Biopolymers Facility

**Software Engineer Intern**

Java, JSP, JavaScript, SQL

Developed small features and performed bug fixes for JSP based LIMS. Created AJAX web calendar for instrument scheduling.

**Boston, MA**

6/2005 - 5/2006

### **John Hancock**

**Release Engineer/Software Configuration Management Intern**

Rational ClearCase, Rational Clearquest, Korn Shell

Maintained and released multiple applications utilizing Rational ClearCase. Developed and maintained Korn Shell build and merge scripts.

**Boston, MA**

6/2004 - 12/2004

### **FundQuest**

**Quality Assurance Engineer Intern**

Mercury WinRunner, C#

Wrote automated test scripts with Mercury WinRunner and created C# test harnesses.

**Boston, MA**

6/2003 - 12/2003

### **TeleType GPS**

**Release Engineer/Quality Assurance/Technical Support Intern**

Created and maintained installer with Install Shield Professional. Assisted in the development of the company FTP and Intranet.

Performed QA testing and provided technical support to end users.

**Boston, MA**

8/2002 - 12/2002

## Honors

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Eagle Scout, Colonel Aide de Camp Governor's Staff (Tennessee), Congressional Certificate of Merit

## Interests

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History, Travel, Backpacking, Game Design

### **Game Development**

Scala, Spray, Akka, Javascript

Server-side development in Scala utilizing Spray framework for RESTful web services.