

JELAI WANG

PROFESSIONAL EXPERIENCE

January 2003 **University of Alabama at Birmingham**
To **Section on Statistical Genetics (SSG)**
Present **System Programmer Lead**

Directs the computing team, which is primarily responsible for implementing the statistical methods developed within the SSG and putting together high quality software for distribution to academic and commercial researchers. These goals are accomplished by clearly understanding the computing needs of the fast-paced academic research environment and introducing modern software engineering methods and tools to meet those needs.

Improves overall computing capability within the SSG by assembling and managing a multidisciplinary team of scientific programmers, leveraging modern software engineering best practices like unit testing, refactoring, and design patterns, and making intelligent use of available high performance computing resources, like Beowulf clusters and large shared memory supercomputers.

Leads the development of *HDBStat!* <http://www.ssg.uab.edu/hdbstat/>, a fast, platform-independent, and easily deployed desktop application for microarray data analysis.

Leads the development of the *Power Atlas* <http://www.poweratlas.org>, a web application that provides power and sample size estimates for planning microarray experiments.

Contributed widely used histogram component to the open-source Java charting library, JFreeChart at <http://www.jfree.org>.

February 2001 **Celera Diagnostics**
To **Statistical Genetics**
June 2002 **Senior Software Engineer**

Designed and implemented software components for solving statistical genetics problems. These components include a library that models the attributes and behaviors of actual entities in the problem space in such a way that software solutions can be written in terms of the problem instead of low-level primitives. Wrote a data-handling framework that could read and write data from different file formats, databases, and simulation sources through an easy-to-use API. Many in-house programs were developed using these libraries, including the Celera Genetics Analysis Tool *CGAT*, a Java Swing desktop application.

Introduced many new libraries, tools, and software engineering practices to speed up development, reduce bugs, and streamline deployment, including unit testing, CVS, and Java Web Start. Moderated a design patterns study group that met weekly to study patterns and discuss object-oriented design issues.

Built and maintained a modern software development environment on the Linux and Solaris platforms. Put together a statistical genetics software library of in-house, licensed, and public domain software, compiling each program from source if necessary, writing installation guides for the more troublesome programs, but in general just making them work.

November 1999 **Pfizer Global Research Alameda**
To **Department of Human, Statistical, and Pharmacogenetics**
January 2001 **Software Engineer**

Developed custom software to streamline the statistical data analysis workflow, including PGXT, a pharmacogenetics study design application, and CT, a human genetics file format conversion framework. These applications were written in Java on the Solaris platform.

August 1998 **University of Alabama at Birmingham**
To **Department of Computer and Information Sciences**
September 1999 **Systems Administrator**

Set up and configured the PDC, BDC, and clients for two NT domains. Fixed network and system performance issues. Secured lab computers for general public access. Developed unattended installation procedures. Worked to integrate NT with Linux and Solaris machines. Worked on a hardware- and software-tracking database. Managed regular back-ups. Utilized remote administration, auditing, and performance analysis tools.

March 1999 **University of Alabama at Birmingham**
To **Department of Computer and Information Sciences**
August 1999 **Honors Research Student**

Developed a program that models a self-sustaining ecosystem in order to study parallel processing techniques and algorithm scalability. The program was written in C++ using the PTHREADS library on a 4-way SMP Linux box.

PROFESSIONAL DEVELOPMENT

Certifications

- Sun Certified Programmer for the Java 2 Platform
- Brain Bench Certified Java 1 Programmer, Transcript #75324

Workshops and Courses

- Two-day Tutorial in R Statistical Computing, UAB, Thomas Lumley
- Parallel Processing with JINI and JavaSpaces, Georgetown University
- JDBC and Client/Server Programming, UC Berkeley Extension
- Java: AWT and Swing, UC Berkeley Extension, Allen Holub

SKILLS

- **Languages** – Java, XML, SQL, HTML/CSS, UML
- **Practices** – design patterns, unit testing, refactoring
- **Libraries** – Java servlets/JSP, Swing, JUnit, JMSL, log4j, dom4j, JFreeChart, Jakarta POI, Jakarta Velocity, JDBC, Java Web Start
- **Operating systems** – Linux, Windows
- **Databases** – MySQL
- **Software development tools** – vim, Subversion, wiki, ant, javadoc

PAPERS

Page GP, Edwards JW, Gadbury GL, Yelisetti P, Wang J, Trivedi P, Allison DB. The PowerAtlas: a power and sample size atlas for microarray experimental design and research. BMC Bioinformatics 2006, 7:84.

Trivedi P, Edwards JW, Wang J, Gadbury GL, Srinivasasainagendra V, Zakharkin SO, Kim K, Mehta T, Brand JP, Patki A, Page GP, Allison DB. HDBStat!: A platform-independent software suite for statistical analysis of high dimensional biology data. BMC Bioinformatics 2005, 6:86.

PRESENTATIONS

- *Plant Microarray Workshop*, Dec 2004, University of Arizona
- *Microarray Research Coordination Network Retreat*, Sept 2004, Mohonk Mountain
- *Plant Microarray Workshop*, May 2004, University of Arizona
- “*Why software engineering? Taking a closer look at the software development process*”, Nov 2000, Pfizer Global Research Alameda

EDUCATION

University of Alabama at Birmingham, August 1999, GPA 3.97
Bachelor of Science Degree with University Honors in Computer Science

HONORS AND AWARDS

- UAB Employee of the Month, September 2006
- UAB Honors Program
- Computer and Information Sciences Honors Research Program
- 1998 ACM Regional Collegiate Programming Contest
- Outstanding Student Award from the School of Natural Sciences and Mathematics