

Jon Bradley

13408 Pierce Arrow Rd. NE, Albuquerque, NM 87112
(505) 934-7667 jon.bradley@gmail.com

Objective

To gain a position doing simulation and visualization

Skills and Experience

- Programmed extensively in Java and C++
- Possesses a strong working knowledge of C# and C
- Programmed applications using OpenSceneGraph and Umbra, a simulation and visualization framework
- Developed GUI applications using Java Swing and Visual Basic
- Wrote multiple vector and raster based applications and rendering systems
- Created a number of 3D applications using OpenGL and XNA
- Implemented a variety of computer vision techniques in Matlab
- Designed, developed, and maintained large software systems
- Developed applications in a number of IDE's including Visual Studios, IntelliJ, Eclipse, Netbeans
- Created applications under Linux, UNIX, and Windows Operating Systems
- Designed databases with SQL in Oracle 8 and MySQL
- Implemented languages using Lex, YACC, JFlex, and JavaCup
- Developed proficiency in Photoshop, Blender, Matlab, and Microsoft Office
- Repaired, upgraded, and networked personal computers

Employment

Sandia National Laboratories, Albuquerque, NM

June 2008 – Current: **Graduate Student Intern**

Independently created a window-paradigm augmented reality simulation incorporating motion capture systems, movable displays, and Wii remotes in Umbra. Implemented blob-based gesture modules for Umbra to improve interaction with touch-tables and Wiimotes. Wrote a vehicle route planning application to demonstrate the 3D interaction capabilities of the system.

Wrote, in a team of three, a module to display 3D visualizations of network interactions within Umbra. Developed numerous applications integrating the 3D network visualization with other Umbra modules.

Individually wrote and performed experiments regarding performance and accuracy of OpenSceneGraph based intersection techniques within Umbra to aid improvement of viewshed calculations.

BASIS International Inc., Albuquerque, NM

July 2006 – August 2008: **Software Contractor**

May 2002 – July 2006: **Software Engineer**

Worked in a team of two with Java 1.4 and 1.5 to optimize our language's interpreter to use our own implementation of mutable strings in lieu of Java's immutable strings. Converted our interpreter from a parse-tree traversal to a stack-based byte-code implementation in a team of two. Lead Programmer as we upgraded our compiled format to support both forward and backward compatibility. In a team of four, enhanced the language specification to support object oriented programming among many other language features.

Redesigned and implemented, as one of five people, the GUI sub-system and its RMI implementation. Functioned as lead programmer as we added many runtime features within the GUI sub-system such as data-bound controls, mouse scroll-wheel support, and MDI. Solely wrote a rapid application development module for NetBeans to

facilitate graphical design of GUI applications in our language. Independently wrote and gave numerous presentations, demos and training classes at our annual technical conferences.

Authored several articles for our technical magazine *BASIS Advantage*. Provided email support to our development community. Provided on-site debugging of an overseas developer of threading issues involving .NET, COM, JDBC, and our environment.

SheBang! (!) Incorporated, Belen, NM

December 2000-January 2001: **Software Architect**

Designed and implemented a proof of concept prototype for a technical communications firm. Project involved a Java 1.3 Swing GUI front-end and Java Applet communicating with a MySQL database.

Maxim Group (contracted to Basis International Inc.), Albuquerque, NM

May 2000-August 2000: **Software Analyst**

Assisted client's engineering team in developing a large integrated development environment in Java 1.3 and Swing. Major focus in printer interface, graphical user interface of our IDE, and Linux specific issues. Resolved bugs, added functionality, and wrote supporting applications in a 500,000+ line project.

New Mexico Institute of Mining and Technology, Socorro, NM

January 2000-May 2000: **Teaching Assistant**

Provided instruction in Object Oriented Methodology and Java 1.2.

Assisted in the development of student programs.

Assessed student performance in both exams and programming projects.

IRIS PASSCAL, Socorro NM

May 1999-August 1999: **Software Designer**

Solely responsible for the design, implementation, and documentation of a database and dynamic graphical content web site to record and display the state of health of remote seismological equipment in Java 1.1

Computer Works, Albuquerque, NM

May 1998 – July 1998: **Computer Technician**

August 1996 - July 1997: **Computer Technician**

Built, upgraded, repaired, and networked personal computers both in house and on-site.

Provided customer support and quality assurance.

Education

University Of New Mexico, Albuquerque, NM

2006 - Current

Masters Degree anticipated December 2008

Major: Computer Science

Grade Point Average: 3.96

Relevant Coursework:

- **Advanced Image Synthesis:** Implemented projects involving the REYES architecture, radiosity, and advanced ray-tracing techniques such as sub-surface scattering, and photon mapping.
- **Artificial Intelligence in Video Games:** Implemented a wide array of AI algorithms including path-finding, flocking, and group behaviors of agents.
- **Real-time Rendering:** Wrote an OpenGL pipeline in C++. Individually wrote a 3D video game in XNA using programmable shaders to implement effects such as depth of field.
- **Vector Graphics:** Wrote a multi-threaded Ray-Tracer in C++ supporting shadows, reflection, anti-aliasing, depth of field, HDRI, textures, 3D models, and glass.
- **Game Development:** Wrote the 3D engine for a team of four's XNA game.

- Computer Vision: Used Matlab to implement computer vision techniques such as photometric stereo, edge detection, synthesis of texture, derivation of shape from texture, clustering and segmentation, and feature recognition via filter banks.

University of West Florida, Pensacola, FL

2001-2002

As part of an Exchange program with NMIMT

Grade Point Average: 3.69

New Mexico Institute of Mining and Technology, Socorro, NM

1997-2002

Bachelor of Science awarded May 2002

Major: Computer Science

Grade Point Average: 3.42

References available upon request