BEN TRUMBORE

607-272-7728 145 Oakwood Lane, Ithaca, NY 14850 ben@trumbore.com

SENIOR SOFTWARE ARCHITECT AND DEVELOPER

Accomplished Agile software architect/developer with expertise in .NET and Java graphical user interfaces, as well as graphics algorithms. Experienced in designing and producing new object-oriented software and working with existing codebases. Versatility to develop both commercial and scientific software. Adaptability to perform well in many settings, including commercial development, instrument control, entertainment and academic research. Outstanding written and verbal communication skills increase team productivity.

TECHNICAL SKILLS

Languages	C++, C#, Java & JNI, C, VB.NET, XML, XSD, XSLT, JSON, SQL, Ant, NAnt
Tools	Visual Studio, eclipse, Qt, SVN, Git, Perforce, CruiseControl.NET, InstallShield, NUnit, CppUnit, Purify/Quantify, VTune, BoundsChecker
Graphics	OpenSceneGraph, OpenGL, GLSL, mental ray
Platforms	Windows, Linux

EXPERIENCE

AUTODESK, INC. - Ithaca, NY **Principal Engineer** **2014 - Present**

Developed functionality in an Agile work environment for InfraWorks desktop product, a cloud-connected application that aggregates, edits and presents geospatial data via an immersive 3D interface.

- Developed geometric algorithm to calculate road grading on 3D terrain data, cutting computation time in half and eliminating many erroneous results.
- Improved the application's data upgrade process to eliminate errors and customer data loss.
- Created and enhanced Qt-based UI components to add new functionality and improve usability.

ADVION, INC - Ithaca, NY **Senior Software Engineer/Architect** **2010 - 2014**

Designed and developed software to control a family of compact mass spectrometers and their peripherals, and to analyze the data they produce.

- Created a software API for instrument control by reworking existing C++ and Java code. Wrapped API in JNI for internal use; wrapped in .NET and ported to CentOS Linux for use by OEM partners.
- Converted single-pipe USB communication system into multi-threaded system for new generation hardware, doubling data throughput while maintaining backward compatibility.
- Created automatic build system providing continuous integration and installer builds.
- Created XSD schema definitions for instrument control parameters and for output data. Wrote XSLT translators to produce visually appealing HTML previews of XML parameter data.
- Implemented technical algorithms to auto-tune instrument parameters for best performance and to correct mass shifting that occurs as instrument scan speed changes.
- Controlled external OEM devices (auto-sampler, pump and flow valve) over USB connections from within main application using separate threads for parallel operation.

ANIMUSIC, LLC - Ithaca, NY **Software Engineer** **2009 - 2010**

Developed custom software for producing music-driven computer animations. Integrated with commercial modeling and rendering software to create a smooth production pipeline.

- Developed features of a proprietary computer animation system built using the Qt framework. Contributed algorithmic improvements for performance, stability and usability.
- Created local network application to manage rendering of animation frames on computing cluster. Artists submit, control, and view progress of rendering jobs from their workstation.
- Implemented browser for artists to sort, search and open completed animation sequences. Data can be filtered by multiple criteria simultaneously.

AUTODESK, INC. - Ithaca, NY **Software Developer** **2001 - 2009**

Designed and developed Geographic Information System (GIS) software for .NET applications, with emphasis on graphical user interfaces (GUIs). Involved in all aspects of development, including product design, system architecture, testing, localization and technical publications.

- Created large Windows Forms GUI for specifying appearance of GIS maps, included in 3 products. Basic GUI is easy to use, while advanced users can access more powerful functions.
- Developed GUIs that included undo/redo functionality and context-sensitive Help, globalized text and number display/entry and keyboard navigation to meet accessibility requirements.
- Implemented system for "plug-in" functionality to be loaded into product at runtime, allowing users to customize and extend application themselves.
- Created XSD schema definition for application's main XML data format, allowing easier data validation, manipulation, migration and extension.

PREVIOUS EXPERIENCE

CORNELL UNIVERSITY - Ithaca, NY **Technical Specialist**

Developed software to support graduate level research at The Program of Computer Graphics, with emphasis on global illumination algorithms and realistic image synthesis.

- Designed and managed 3 year construction of software "testbed" for research in realistic image synthesis (40 modules, 100K lines of C). Maintained and optimized system for 3 additional years, providing continuity as students arrived and departed.
- Created graphical user interface in Java for existing C++ volume visualization software. Powerful but complicated functionality became accessible to non-experts when non-intuitive command line interface was replaced with user- friendly GUI.
- Implemented single- and multi-processor ray tracing renderers, allowing students to efficiently generate realistic images of architectural models. Optimized performance and memory usage so very large data sets could be rendered.

EDUCATION

Master of Science in Computer Science
Brown University, Providence, RI

Bachelor of Science in Mathematics and Computer Science
West Chester University, West Chester, PA