gary sinitsin

software developer

gary@garysinitsin.com

I'm a skilled developer with over 12 years of experience. I work with a wide variety of technologies including C++, C#, OpenGL, Linux, and Python. Using modern OOP patterns and a deep knowledge of computer architecture, I have built many innovative software products and powerful 3D graphical tools.

employment & project history

Medico – 3D Scanning and CAD/CAM Software Jan 2017-Present

- Currently a full-time developer working on 3D scanning and CAD/CAM systems
- My main responsibility is writing C# and C++11 software for capturing 3D data as point clouds, processing it into usable geometry, and allowing user-friendly editing and output to CNC hardware

Some of my accomplishments:

- Implemented new math and algorithm classes to handle vastly increased amounts of 3D data
- Added optimized algorithms to conveniently automate the processing of scanned objects
- Refactored OpenGL rendering code to improve performance and allow running on tablet devices
- Documented and fixed a variety of bugs and added unit tests to catch regressions
- Designed and implemented new user interfaces for complex and specialized workflows
- Researched industry-specific background so the software I wrote followed our users' expectations

OpenGL Project – Real-Time 3D Procedural Generation 2016

- Uses a mathematical seed to generate a variety of arbitrary complex shapes or near-infinite terrain
- Carefully designed algorithms and GLSL shaders generate and render huge amounts of geometry very efficiently and in real time, allowing the user to navigate smoothly through the environment

BoopShare – File Transfer Application 2016

- A user-friendly way to enable viewing/downloading PC files on desktop/mobile Web browsers
- C++ was used to implement the client and server, and deployment was automated with Python
- The Web software was built with PHP, JavaScript, and MySQL

Online at boopshare.com. Detailed development notes at garysinitsin.com/boopshare.

Everest Water – E-commerce Web Development and Consultation 2016

- Technical consultation and Web application development

TinCanPhone – Open Source VOIP Application 2015

- Peer-to-peer VOIP written in C++, for Windows and Linux: github.com/garynull/tincanphone

Winmar Vancouver – Web Development 2013

- Developed a PHP application and public-facing website for handling web/e-mail/print marketing

On Side Restoration – Internal Software Project 2008

- Developed software to automate various tasks and interoperate with legacy web apps over HTTP

Contract Work 2003–2016

- Involving C++, PHP, JavaScript, MySQL, and Flash/ActionScript

For more project history and program screenshots, please visit garysinitsin.com.

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skills & knowledge

Many programming languages:
C++03/11, C#, C, GLSL, HLSL, PHP, Python, JavaScript, SQL, Shell scripts, and some Java and Rust

3D graphics and geometry, including experience with:
Modern and legacy OpenGL, WebGL, Direct3D, vertex and fragment shaders, the GPU pipeline, linear algebra, space partitioning data structures, tesselation of 3D objects and data

Object-oriented programming patterns:
Encapsulation, separation of concerns, loose coupling, polymorphism, etc

Profiling and optimization, unit testing, debugging, and refactoring:
Visual Studio, GCC, GDB, Very Sleepy, Catch, etc

Windows and Linux platforms, plus many API's and libraries:
WinAPI, .NET, POSIX, GTK+, OpenGL, GLM, GLFW, SDL, CURL, Asio, Flask, etc

Use of version control in a team environment:
Mercurial, Git, SVN, CVS, branching and merging

Deep understanding of modern computer architecture, including:
CPU instructions, registers, cache, memory addressing, GPU capabilities, OS's, compilers, jitters, etc

Internet protocols:
TCP/IP, HTTP, REST, XML, JSON, and use of cryptographic algorithms

Web applications for desktop and mobile using:
PHP, Python, Flask, HTML5, CSS, JavaScript, jQuery, Apache, MySQL

Linux server environments and command-line utilities

Generating tool paths for multi-axis CNC hardware, mainly using G-code

3D modeling, rigging, and animation, Autodesk Maya/MEL

User interface design, Unicode and i18n, creating graphics and icons with Adobe Photoshop

Soldering, basic electronics, computer hardware maintenance, and semiconductor logic

education

Digital Animation and Effects Diploma, Web Application Development Certificate, CMIT College, 2004
- **Graduated with honors and received an award for Excellence in Design**