

Josef Andrew Graus

SUMMARY OF QUALIFICATIONS

With nine years of professional programming and software engineering experience; working through a PhD at George Mason University; and with a deep interest in computational logic, simulation, mathematics, image processing, and computational geometry; Mr. Graus is currently seeking an opportunity to work with dedicated and intelligent computer scientists, mathematicians, and other physical scientists on projects involving 3D rendering, simulation, and game technology.

- **Simulation programming**
- **Algorithm analysis**
- **Game theory**
- **Computational geometry**
- **Mathematical logic**
- **Image processing**
- **Graph theory**
- **Artificial Intelligence**
- **3D Rendering**

EDUCATION

M.Sc., Computer Science, George Mason University, December 2014
Graduate Certificate, Computer Games Technology, George Mason University, December 2014
B.S., Computer Science, George Mason University, December 2011
B.S., Mathematics, George Mason University, June 2011

Currently pursuing a PhD in Computer Science from George Mason University with a concentration in video game technologies, simulation, and 3D rendering.

PROFESSIONAL DEVELOPMENT

Certifications: CompTIA A+
CompTIA Network+
VTSP Accreditation (VMware)

Security: Top Secret (TS) with Single Scope Background Investigation (SSBI)

TECHNICAL SKILLS

Platforms: Windows 7/8/10 and various flavors of Linux, including but not limited to Ubuntu, Debian, and Red Hat.

Languages: C++14 (Modern OpenGL, OpenCV, Win32, MFC, .NET CLI), C# (WPF, WinForms), Matlab, Lisp, Python, XHTML, CSS, C, Java, XML, Lua, SQL, and shell scripting.

PROFESSIONAL EXPERIENCE

NIKON METROLOGY, INC, Manassas, VA **01/2013 – Present**
Senior Software Engineer

- Responsible for researching and implementing computer vision and image processing solutions to novel problems regarding target acquisition, measurement, and tracking using a coherent laser radar (CLR). Currently collaborate with Japanese researchers in creating video calibrations, automated slot detection and measurement algorithms, and feature detection tools. Technologies include C++11, C#, and OpenCV. Other tasks include writing in-house tools for testing and developing new CLR optics solutions, integrating new CLR features into a larger unified metrology project, and prototyping algorithms in Matlab.

CRUCIAL SECURITY (part of HARRIS CORPORATION), Chantilly, VA **05/2011 – 12/2012**
Software Engineer

- As a software engineer for Internal Research and Development (IRAD) projects at Crucial Security, primary responsibilities include prototyping proposed tools and applications either for internal use or eventual development into a demonstrable product for government clients. Work requires an understanding of low-level operating system components and conventions; competency in a variety of object-oriented programming (OOP); procedural and low-level languages; experience in reading, understanding, and enhancing/modifying existing programs; and an ability to analyze and solve novel and unusual problems. Major products included an Android-based forensic tool, a distributed VMware based fuzzer, and a symbolic ROP (return-oriented programming) solver.

NCS TECHNOLOGIES, INC., Gainesville, VA **05/2007 – 08/2010**
Software Engineer

- Contributed code and expertise to an in-house automatic deployment solution (ADS) to streamline production and testing of a variety of hardware (desktops, laptops, thin clients, servers, etc.) via C++, virtualized testing environments, preboot execution environment (PXE) proxy sessions, virtual storage area network (SAN) booting, and simple object access protocol (SOAP) (XML over HTTP) service-oriented architecture (SOA)-style agent/service communications.

MERLIN SIMULATION, INC., Falls Church, VA **06/2005 – 04/2007**
Programmer

- Designed various realistic flight simulator models for subsequent use in Federal Aviation Administration (FAA)-certified flight simulators, utilized C++ application programming to implement various flight controls and scenario creation tools for the creation of dynamic flight situations, and researched and familiarized coworkers with new products and tools to improve project efficiency.
- Maintained C++ application projects with Visual Studio 2005, and coordinated efforts with other team programmers utilizing concurrent versions system (CVS) and WinMerge.

PERSONAL PROJECTS

Ascent

Coding an open-world first-person perspective crafting game in C++11 using OpenGL 4.x with custom asset libraries, procedurally generated dungeons, deferred shading, and other novel rendering approaches (partially for the experience, and also because I'm deeply interested in games). I've recently acquired an Oculus Rift DK2, and have integrated that into my engine as well. I'm very excited and highly motivated by current trends in virtual reality technology.

Project Genesis

Built a C++ based 3D rendering engine from the ground up. The entire package includes the engine, a terrain generation tool implementing procedural generation algorithms, a rudimentary 3D model editor, an embedded scripting language, and conversion libraries for COLLADA digital asset exchange (DAE) and optimized binary assets.

Old Magic: The Masterful Apprentice

Coded an ActionScript 3.0-based adventure role playing game in collaboration with award-winning digital illustrator Cynthia Sheppard of Sheppard Arts.