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### Technical Proficiencies

- Programming: C, C++11, GLSL, Java, Ruby, Python
- Optimization: general purpose GPU, profiling, instrumentation, multi-threading, asynchronous programming, lockfree programming, data-parallel programming
- Algorithm Design: rendering and graphics, dynamic systems, computational geometry, image processing, spatial indexing, domain specific languages, real time data visualization
- Software Architecture: soft real time, distributed systems, distributed computation, n-tier systems, OTS engineering, advanced object models, meta-programming
- Simulation Design: particle systems, fluids, spring-mass systems, n-body systems, rigid body dynamics, inverse kinematics
- Tools: Linux, bash, git, svn, gcc, icc, clang, SCons, cmake, libruby, libpython, jruby, eclipse, netbeans, Visual Studio
- Packages: OpenGL, OpenGL ES, OpenCL, Qt 5, QML, Boost, GLM, sqlite3, slurm, Kakadu JPEG2000, Terathon C4, RAD Telemetry, JMonkeyEngine, Eigen, AspectJ, redis, protocol buffers, OrientDB

### Managerial Proficiencies

- Team Leadership: recruitment, training, organization, direction, inspiration, oversight
- Product Management: design and architecture, needs analysis, evolution planning, QA management, documentation of requirements, spec, design and usage
- Project Management: planning, budgeting, scheduling, critical path analysis
- Interdisciplinary Communication: artists, scientists, non-technical stakeholders

### Recent Positions

- Software Product Manager: Flagship Biosciences, Inc. - Westminster, CO (June 2014 - Present)
  - Design real-time imaging algorithms and network transport for multi-gigabyte, n-channel medical imagery.
  - Implement imaging algorithms in C++ and GLSL for CPU, GPU (on Windows and Linux) and distributed cluster execution (on Linux).
  - Implement multiple C, C++, and Python “glue” components between OTS systems, including distributed cross-platform file access layer.
  - Design, document, and maintain repeatable, cross-platform automated build.

- Specify and architect distributed multi-user image retrieval, processing, and analysis system.
- Specify and architect high-performance CPU+GPU cluster environment for massively parallel image analysis.
- Interface with non-technical stakeholders (scientists, executives, users) to determine UX and business requirements.
- Oversee product and project development, including recruitment and supervision of engineering and quality assurance staff.
- Technical Director & Chief Engineer: Hit the Sticks, LLC - Devon, PA (July 2010 - January 2014)
  - Design, develop, and implement real-time graphics, physics, particle, and special effects algorithms.
  - Design, develop, and implement repeatable cross-platform builds.
  - Collaborate with artists on design of game world, assets, UI, sound, music, etc.
  - Provide technical training and guidance to art staff.
  - Write backstory, dialog, and narrative (see “Education” below).
  - Developed realtime, multithreaded 3D fluid dynamics simulation (in Java!).
  - Developed realtime Jacobian inverse-kinematics.
  - Developed and released two commercial 3D desktop computer games.
  - Direct an 8-person multi-disciplinary team of engineers, artists, sound artists, and QA staff.
- Owner: Grey Helix, LLC - Indianola, WA (June 2008 - July 2010)
  - Contract work for games and video distribution industries.
- Software Engineer: Lightning Gaming, Inc - Aston, PA (February 2007 - May 2008)
  - Work with team on maintaining and improving large codebase for casino gambling product.
  - Innovate new graphical capabilities and integrate with legacy codebase.
  - Responsible for internationalization and localization, including internationalization of legacy codebase.

## Education

- Temple University (PhD program) - Philadelphia, PA - no degree awarded (2006-2007)
- Temple University - Philadelphia, PA - Bachelor of Science, Computer and Information Science (2003-2006)
- University of the Arts - Philadelphia, PA - no degree, Writing for Film and Television (2001-2003)