

Peter Schwer

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<http://www.peterschwer.com>

Education

Masters: UCSD in Computer Science, 2004, 3.6 GPA

- Emphasis in Computer Graphics and Vision

Bachelors: BYU in Computer Science, 2002, 3.6 GPA

- Minor in Portuguese

Skills

Languages: C++ including template programming, C, VB, SQL, PSQL, Java, Perl, Matlab, Javascript, HTML, XSL, makefile, shell scripting, Ada95, .NET languages.

Graphics: OpenGL, GLUT, GLUI, Direct3D, ESRI, C/JMTK, SVG

Tools: SunStudio, Visual Studio, Oracle (TOAD), STL, MS XML, xdesigner, dbx, gdb, vi, uxmetrics, purify, quantify, CVS, Windows, Solaris and Linux Variants.

Process: SEI CMM Level 5, ISO 9001:2000

Clearance: Top Secret

Work Experience

Software Engineer, NIDS II, SAIC, 2004-present

NIDS II is the targeting application at US Strategic Command for nuclear war planning (more than 1 million SLOC).

- Created an ESRI and C/JMTK based targeting mapping application demonstration and presented it to the Government customers resulting in kudos from USSTRATCOM (in Java).
- Selected as lead of Weapon Optimizer and developed new algorithm analysis and population processing methodologies yielding order-of-magnitude performance improvements.
- Presented a solution to the customer intended to handle numerical instabilities in weapon optimization routines. Following customer approval, implemented the solution (in C).
- Integrated landscan population database into weapon optimizer calculations. This involved reengineering a DOD-certified algorithm (from HPAC) for damage assessment with multiple speedups to make it viable for optimization routines.
- Extended the database interface layer and object layer to accommodate conventional weapon objects and other user-specified database objects (in C, Ada95, PSQL).
- Refactored an existing facility coding component to be operable from all NIDSII modes (in Ada95).
- Developed a series of shared GUI components and integrated them into the xdesigner software (in C++ using xdesigner).
- Designed and implemented a GUI control file editor (in C++ using xdesigner, Motif, XRT and legacy components).
- Detected and solved an issue in the makefile system that led to an order-of-magnitude speedup in build times.
- Researched 5,000+ lines of legacy Fortran code and provided estimates on cost of reengineering and SLOC estimates for implementation in C++ and Ada95.
- Implemented technical solutions that contributed to exceptional feedback from the customer including 99% and 100% award fees resulting in over \$321K in profit and a 10 out of 10 formal client assessment.

Teachers Assistant, CSE190 Rendering Algorithms, UCSD 2003

- Assisted students in developing a ray tracer. Judged rendering competition (see http://graphics.ucsd.edu/courses/cse190_s03.html).

Lead Web Developer and Administrator, BYU 2001-2002

- Programmed and administrated the RELATE web site. Involved working with ASP, XML, XSL, VBScript and legacy code (See <http://www.relate-institute.org>). Administered several web servers during a period of 1000% growth in site usage.
- Developed questionnaire generation software for web administered surveys (in XSL, SQL, ASP and VBScript).
- Developed a distributed report generation utility for complex custom reports (in XSL and Visual Basic using COM). Involved the generation of SVG graphs and formatting objects that were fed to a PDF generator.
- Developed the credit card processing facility during a period of record growth in over-the-web sales.

Academic Experience

Student, UCSD 2002-2004

Notable projects:

- T-Splines modeling software (Masters Project with Dr. Sam Buss) (in C++).
- Thin-film fluid dynamics software for rendering watercolor paint (in C++).
- Facial expression synthesizer using ratio images (in Visual Basic).
- Shape-context matching software for object tracking (in Matlab).
- Ray tracer supporting global illumination (with photon maps), and multiple acceleration structures: BVHs, BSPs, grids using GLUI, GLUT and OpenGL (in C++).
- Design for a multimedia messaging system supporting large-scale videoconferencing, authentication and multimedia file transfers (in UML).
- Presented multiple research papers in a classroom environment, including: bidirectional texture functions, human gait recognition, memory management systems, plenoptic stitching, QoS for multimedia streaming.

Student, BYU 1995-2002

Notable projects:

- Server and client software for multiple-stream file transfers (in C++).
- Particle system generator and renderer using Direct3d (in C++).

Other Interests, Skills

Interests: Calligraphy, Woodworking, Carpentry, Cooking, GUI design and novel user interactions.

Languages: Fluent in Portuguese, Capable in Cape-Verdian Crioule

Sports: Volleyball, Basketball, Golf