

Resume

Tim C. Schröder

Experienced Software Engineer
Computer Graphics Specialist
CellBE Expert

Berlin, Germany

Contact

Email: tim@blitzcode.net / Cell phone: 00 49 (0)176 24082367

Please see www.blitzcode.net/contact.shtml for most recent contact details.

Skills

Programming Languages

- Strong C/C++ (Procedural, Generic & OOP, STL, Projects with >1M LoC, 7+ Years)
- Basic experience with C#, MC++, JScript, VBScript, Visual Basic 3 - 6 and Lua
- Various GPU Languages
- HTML / XML

Windows

- A decade of Windows programming practice (9x, CE, NT, 2k, XP, Vista)
- Win32/64 Expert (Processes & Threads, Memory Management, DLLs & Binary Compatible Interfaces, Networking, DirectX, User Interfaces, GDI, Common Controls)
- .NET Framework: WinForms 2.0, Managed D3D9
- MFC experience

Linux / UNIX

- Development experience on Linux (x86, x86-64, PPC / CellBE) and SGI IRIX / Altix
- GCC and GNU Binutils, ELF file format, Build optimizations for CellBE SPUs
- Used standard tools and applications: vim, cygwin, X11, tcsh, ctags, make, svn, ...
- Debugging of complex multithreaded applications with TotalView Debugger, also familiar with ProDev WorkShop Debugger (cvd) and Data Display Debugger (ddd)
- Intel VTune Performance Analyzer 8.0 for Linux

Graphics Programming

- A wide range of algorithms and techniques, such as Path Tracing, Photon Mapping, Surface Parameterization, Spherical Harmonics, Progressive Meshes, Shader Programming, Shadow Mapping, Radiosity, Ambient Occlusion, Low Discrepancy Sampling (QMC), Spectral Rendering, Tone Mapping
- Graphics experience on multi CPU / GPU systems, CellBE and GPGPU platforms
- Direct3D 7, 8.x, 9.0x, also D3DX, DXUT and DirectDraw
- OpenGL (Up to 2.1, ES, glsl, glu, glaux, glut, glx, wgl, FBOs, NV & ATI extensions)
- Microsoft PIX and other DirectX SDK tools, FX Composer
- Vertex and Pixel Shaders (Assembler, Cg, CgFX, GLSL, HLSL and FX Files)
- mental ray HW Shaders, Phenomena and .mi Scene Description Language

Software

- Visual Studio power user (6.0 - 8.0)
- SCC Software: Subversion, CVS, Tortoise, SourceSafe (incl. administration, API)
- Basic knowledge of DCC tools (3D Studio MAX, Softimage XSI)
- IBM and Sony Linux CellBE SDK, PLAYSTATION 3 GameOS tools (including PA Suite)
- FogBUGZ, Doxygen, Quantify, Visual Assist, VTune, VMWare, ...

Work Experience

[mental images](#) (May 2004 - Present, Senior Graphics Software Engineer)

- Worked with a large range of CellBE platforms: IBM QS20/22 Blades, Sony BCU-100 and PLAYSTATION 3 (GameOS & Linux), implemented advanced concepts such as cooperative multithreading for SPEs, a pipeline for loading and executing MetaSL SPE shader code, a C++ template library for DMA transfers, trained and supported team members in all things CellBE
- Researched raytracing algorithms for CellBE processor using simulator / IBM Blade, successful prototype led to contract for a CellBE port of mental ray
- Developed and documented strategy to port raytracing algorithm from proprietary chip to NVIDIA CUDA platform, including implementation of a CPU based prototype
- Maintained and enhanced mental ray's OpenGL / Cg rendering backend while doing a Direct3D / HLSL / FX File port of it
- Developed scalable rendering software on multi-GPU machines from SGI and PANTA Systems
- Worked on next-generation rendering platform for RealityServer 2.0: GLSL / Cg, Tile Rendering, OpenGL, Texturing, DDS Support, Shadowmaps, Anti-Aliasing, Cubemaps, ...
- Assisted in MetaSL / mental mill development (Cg backend, Direct3D rendering, early evaluation of an VM platform, builds for external employees, CellBE port)
- Helped design and implement 2D annotation renderer for RealityServer 2.0
- Supported hardware shader writers for 3D Studio MAX and SolidWorks
- Created testsuite to ensure quality of mental ray hardware rendering
- Developed in a UNIX-centric environment using Linux / IRIX / Cygwin

Freelancer (March 2004 - May 2004)

- Implemented Photon Mapping for walkthrough applications as C++ library for [KPB](#)
- Created a lightmap compiler and viewer using C++ and OpenGL for [S&P Software](#)

[Crytek](#) (March 2001 - August 2003, Software Engineer)

- Developer on tools, game and engine code for Far Cry / CryENGINE
- Worked on WYSIWYG game world editor (MFC application, procedural tex. generation & object placement, heightfield editing & lighting, game engine integration, ...)
- Did basic rendering R&D and a proof of concept port of CryENGINE on the Xbox
- Wrote game logic code in C++ / Lua (had to work in multiplayer scenarios)
- Implemented Lua script code debugger integrated in game & editor (including GUI)
- Programmed lightmap system that combines classic lightmaps with bumpmapping

References for these companies are available on request.

Work Examples

To see various examples of my previous work, please visit the projects page on my website (<http://www.blitzcode.net/projects.shtml>).