

JAAP SUTER

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1738 Parker Street
Vancouver BC V5L 2K8
Canada

EXPERIENCE

Lead Rendering and Performance Engineer

Navigate Surgical Technologies

2014 - 2015

Vancouver, Canada

Helped create a novel system for *camera-assisted dental implant surgery*.

- Built a low-latency client-server rendering system, capable of displaying volumetric and polygonal data, replacing an expensive third-party product that lacked critical features.
- Added support for pixel-accurate unwarping of viewports along a cubic spline, enabling quicker and more reliable discovery and visualization of nerve canals in CT data.
- Created the company's automated testing infrastructure, and made continuous integration central to every-day development.
- Delivered an extensive test suite alongside the renderer, verifying overall robustness, relative accuracy, visual fidelity, and DICOM edge-cases. Also included several benchmarks for continuous detection of performance regressions (memory, latency, and frame-rate).
- Found major optimizations in the computer-vision pipeline, contributing a ten-fold reduction in worst-case latency, and a 200% speed-up on average.

Senior Performance and Concurrency Engineer

Capcom

2013 - 2014

Burnaby, Canada

Brought onto the Dead Rising 3 project for a performance investigation deep dive.

- Built a hot-patching profiler for minimally intrusive timing.
- Discovered significant under-utilization of hardware due to an aging single-core architecture.
- Wrote a task manager to execute work across multiple cores easily and robustly.
- Contributed major speed-ups by parallelizing existing CPU intensive code.
- Raised awareness of concurrency and parallelism through articles and talks.

Android Developer

AirG

2012 - 2013

Vancouver, Canada

Client-side developer for Hookt, a mobile messaging application.

Happy Hobby Hacker

Sabbatical

2011 - 2012

Vancouver, Canada

- Built a [Structured Light 3D Scanner](#), testing a novel camera calibration mechanism.
- Wrote a custom CLR host and [C#/C++ interop layer](#) to get .NET's Async Await and native Direct3D to play well together.
- [Experimented](#) with various web technologies (Ruby, Haml/Sass, CoffeeScript, and Node.js)

Technical Director
Electronic Arts

Burnaby, Canada
2005 - 2011

- Headed the *Core and Infrastructure* group (11 people), building and maintaining foundational technology used by most EA games.
- Initiated and wrote large parts of *EASharp*, a project to allow C# programming for game consoles (PS3, X360, Wii) through a custom .NET runtime.
- Designed and implemented *Job Manager*; the company-wide solution for task parallelism, used by many EA studios.
- Drove the mobile strategy for EA's shared technology, porting base libraries and build infrastructures to new platforms (iOS, Android, etc.).

Senior Programmer - Next Level Games

Vancouver, Canada - 2004 - 2005

Xbox SKU Lead and Generalist SE - Electronic Arts

Burnaby, Canada - 2002 - 2004

Pocket-PC Developer - Overloaded

Amsterdam, The Netherlands - 2002

R&D Graphics Engineer - Davilex Games

Houten, The Netherlands - 1999 - 2002

EDUCATION

B.Sc. in Computer Science - Twente University

Enschede, The Netherlands - 1998 - 2002

SKILLS

- Delivers solutions that are robust, accessible, elegant, and of high performance.
- Strong advocate of test driven, agile, and pragmatic development.
- Comfortable managing logical and physical aspects of large multi-language cross-platform projects.
- Passionate about concurrency/parallelism, knows how to leverage heterogeneous multi-core architectures.
- Responsible performance engineer (no guesses, bottlenecks first, profiler-driven, and test-verified).
- Expert C++ programmer, comfortable with the STL, Boost, and C++ 11/14.
- Expert C# programmer, experienced with Linq, RX, Async Await, and the .NET runtime internals.
- Experienced HLSL shader author, both for graphics and compute (GPGPU).
- Experience writing C and assembly for embedded devices.
- Dabbled in: Python, Ruby, CoffeeScript, Java/Xtend, Assembly (x86/64, ARM/Neon, Cell SPU).
- Platforms: Win32/64, Xbox (360, One), PS3 (PPU/SPU), Android, iPhone, Wii, PS2, Gamecube, GBA

PUBLICATIONS

Suter J. (2003) - **Geometric Algebra Primer** - An introduction to Clifford Algebra
(available online at <http://www.jaapsuter.com/geometric-algebra/>).

CREDITS

Dead Rising 3 (2014)

FIFA Soccer 2005 (2004)

Snowboard Jam (2002)

Burnout Paradise (2009)

UEFA Euro 2004 (2004)

Nim & Lost Garden (2002)

NBA Street (2007)

FIFA Soccer 2004 (2003)

Magnets (2002)

NFS: Carbon (2006)

The Sims Bustin' Out (2003)

US Racer (2002)

Super Mario Strikers (2005)

US Racer (2002)

DaviTuin/Woon 3D (2000)