

Michał Siejak

Curriculum Vitae

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Portfolio: www.siejak.pl

Education

- 2010 – 2013 **MSc in Computer Science**
Adam Mickiewicz University of Poznań
Faculty of Mathematics and Computer Science
Thesis: *GPU Light Modeling in Computer Graphics*
- 2007 – 2010 **BSc in Computer Science**
Adam Mickiewicz University of Poznań
Faculty of Mathematics and Computer Science
Specialization in Algorithms and Software Engineering

Professional Experience

- 2015 – ... **Software Consultant**
Freelance software consultant specializing in game development (Unreal Engine 4), cross-platform applications (Qt), virtual reality (Samsung GearVR), GPU computing (CUDA/OpenCL), and more.
- 2015 – 2016 **SetApp**
Software developer working on mobile Virtual Reality projects. My work included game development with Unreal Engine 4 as well as creation of a custom proprietary 3D engine with OpenGL ES for GearVR platform.
- 2013 – 2015 **Dark Stork Studios**
Technical Lead in a game project using Unreal Engine 4. My responsibilities included: game & engine programming in C++, managing and supervising a team of developers, participating in technical project planning and providing technical feedback to management. I also handled graphics programming and often provided technical advice to artists & designers regarding visual effects.
- 2012 – 2013 **Samsung R&D Institute Poland**
C & C++ developer working with embedded devices (set-top boxes). I developed embedded applications in both Qt and custom proprietary frameworks as well as did kernel-level driver troubleshooting and debugging.
- 2010 – 2012 **Faculty of Mathematics and Computer Science, AMU**
Linux Systems Administrator maintaining about 200 dual-boot Windows & Ubuntu Linux workstations and terminal thin client infrastructure.
- August 2009 **Beyond.pl Sp. z o.o.**
Internship.
- 2008 – 2009 **VDA.pl Interactive Agency**
C++ developer working on an online backup application (GUI and compression algorithms) for small and medium business.

Extracurricular Activities

- 2012 – 2013 | Head of AMU Parallel Computing research club *CUDAki*.
- 2004 – 2009 | Co-founder and lead programmer of *ALLien Senses* demoscene group.

Highlighted Projects

For a full list please visit my programming portfolio at www.siejak.pl.

- 2016 **UE4 Procedural Terrain**
Procedural terrain solution for Unreal Engine 4. Terrain is generated during gameplay using Improved Perlin Noise. Uses multi-threading to maximize performance. Supports network replication of generated terrain chunks.
- 2015 **Escape Velocity**
Interactive Virtual Reality experience for GearVR, powered by Unreal Engine 4. My role in this project involved graphics programming and performance optimizations for the target device.
- 2015 **Hello Boing**
Executable Graphics competition entry that won 1st place at Decrunch 2015 demo-party. Written in hand-optimized Motorola 68000 assembly, it renders a raytraced Amiga logo with ambient occlusion in under 30 seconds on a 7 Mhz Amiga 500 with 512kB of RAM.
- 2013 **Aurora GPU raytracer (master's thesis project)**
A physically-based Monte Carlo distribution raytracer for Autodesk Maya running on a GPU. It is written in C++/CUDA and features a novel technique for accelerating ray intersection tests by presorting the triangles.
- 2012 **CLIPT (OpenCL Image Processing Toolkit)**
A small GTK3 application which processes images with a variety of algorithms on a GPU using OpenCL. I was responsible for the OpenCL initialization code, robust OpenCL/OpenGL buffer sharing system, plugin API and universal convolution filter.
- 2012 **xlsh – eXtended Login Shell**
This project aims to provide a convenient replacement for standard `login` program found on many POSIX compliant systems. It's written in C and uses PAM for authorization.
- 2010 **Vorticity / Arsen**
OpenGL 3D engine with dynamic scene graph and support for NVIDIA CgFX effect files. Used in a proof-of-concept augmented reality card game *Arsen*.
- 2009 **FSproxy**
An application that allows accessing Linux filesystems under Microsoft Windows. It runs minimal Linux under QEMU serving files via Samba over a virtual network interface. The UI is written in C/WinAPI. It got moderately popular and has been featured on several software download websites.

Research

- 2009 – 2010 **pmdb (Polish Morphological Database)**
Scientific grant led by Mr. Tomasz Obrębski PhD from Faculty of Mathematics and Computer Science, AMU. My role was to design and implement both a library in Ruby language and an interactive shell for working with a polish morphological dictionary. I also improved on several statistical algorithms used during processing of dictionary queries.

Skills

Programming languages	Most experienced with: C, C++ Some experience with: C#, Ruby, Python, x86 assembly, Shell scripting Familiar with: Java, Perl, Lua
Programming technologies	UI: Qt (also QtQuick/QML), Gtk, WinAPI GPU computing: CUDA, OpenCL 3D graphics: OpenGL 4 (most experience), Direct3D 11, shader programming with GLSL, HLSL and Cg Game development: Unreal Engine 4 (C++ game & engine programming, shader development, Blueprint scripting, UMG). VR: Oculus VR API (native GearVR applications).
Platforms	Linux: Very good knowledge of Linux as a platform for both embedded & desktop/server development (POSIX APIs, BSD sockets, kernel interfaces). Windows: Solid knowledge of Windows API, familiarity with COM programming model & DirectX.
DBMS	PostgreSQL, MySQL, SQLite
Tools programming	Experience developing plugins for Autodesk Maya and Autodesk 3D Studio MAX content creation software.
Version control	Git, Perforce, Mercurial, SVN
Build systems	MSBuild (Visual Studio), Makefiles, CMake, qmake
Project management	Usage & administration of Atlassian tools (Jira with AGILE, Confluence, Stash, Bamboo), Redmine
Systems administration	Lots of experience in managing Debian-based Linux systems Central configuration management with Puppet Basic experience working with Microsoft Windows servers in Active Directory environment Solid networking knowledge
Mathematics	Good understanding of fundamentals such as linear algebra and algorithmic analysis. Familiarity with numerical methods and applied probability.
Other	Strong grasp of OOP concepts and design, familiarity with UML and software development methodologies, experience working with Scrum.
Legacy/Retro	Motorola 68000 & MOS Technology 6502 assembly, Commodore Amiga hardware & systems programming.

Languages

Polish	Native
English	Fluent

Interests

IT related	Computer graphics, game development, demoscene, high performance computing, operating system development, vintage computers.
other	Music, science fiction, live action role-playing, tabletop RPGs, homebrewing.