

Anatoliy Gerlits

Graphics and physics programmer

Date of Birth: 22 May 1987
Marital Status: Single
Children: No
Nationality: German
Languages: Russian, English

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Location: Moscow, Russian Federation

Education

Master's degree: Computer Engineering and Software

Karaganda State Technical University (www.kstu.kz/?lang=en).....2009-2011

Bachelor: Computer Engineering and Software

Karaganda State Technical University (www.kstu.kz/?lang=en).....2005-2009

Skills

C++
OpenGL 4+
DirectX 12
Shaders
Algorithms

Graphics programming
Physics programming
Multithreaded programming
SSE code vectorization
Good mathematical base

5+ years of work experience
Programming experience 15 years

Work Experience

Gaijin Entertainment (<http://gaijinent.com/en>).....May 2014 - today

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War Thunder project: <https://warthunder.com/en/>

- implemented buildings destruction
- new materials, shading improvements
- water improvements: waves, decals, foam, gpu particles, caustics, ship wetting
- a lot of other features: 360 video, effects improvements, etc.
- bug fixes, profiling, optimizations
- Substance Designer shaders

1C Online games (www.1csc.ru/company/about).....August 2011 - October 2012

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Il2-Online (project closed)

- landscape rendering
- animation system: inverse kinematics, animations blending
- characters customization
- effects rendering optimizations
- max scrip utilities

Scopic Software (www.scopicsoftware.com).....August 2009 - December 2009

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- materials, shading improvements
- molecular structure rendering (molecules rendering, ambient occlusion, COLLADA file format loading)

Publications

Frustum culling

EN: https://www.gamedev.net/resources/_/technical/general-programming/frustum-culling-r4613

RU: <http://www.gamedev.ru/code/articles/FrustumCulling>

Covered themes:

- culling of: Bounding Spheres, Axis-Aligned Bounding Boxes (AABB), Oriented Bounding Boxes (OBB)
- culling of huge amount of objects
- using SSE optimizations
- multithreaded culling
- GPU culling
- comparison of approaches efficiency, working speed

OpenGL API overhead

EN: https://www.gamedev.net/resources/_/technical/opengl/opengl-api-overhead-r4614

RU: http://www.gamedev.ru/code/articles/opengl_overhead

Covered themes:

- API calls cost
- State changes cost: frame buffers, vertex buffers, textures, shaders, shader parameters
- Different instancing methods and data storage in different buffer types
- Several practical examples of how one can optimize geometry rendering: texture arrays, modern buffers usage and update, using MultiDrawIndirect and other.

Additional information

High self-motivation, communication skills.

R&D in 3d graphics, physics and other technologies.

I make implementations of beautiful graphics techniques like global illumination, Physically Based Rendering, ambient occlusion, soft shadows, trees and grass animation and rendering, etc.

Research, analysis, performance comparison.

Work with latest graphics API: DirectX 12 and OpenGL 4+

More on my web-site: <http://wizards-laboratory.com/>