

Robert Hoffmann

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I'm a Game Engineer working in the Video-Game industry for over 20 years. I was engaged in all kinds of areas: Shader/Graphics-Coding, Gameplay, Engine, VFX and Physics. The biggest projects were done in C++ using the Unreal Engine (Spec Op: The Line, Dreadnought).



2021 - 2023	Tomorrow Falls - DPS-Games - Unreal Engine 4 Senior-Graphics-Coder DPS-Games (Wargaming UK) At DPS-Games I developed countless shaders and effects for Tomorrow Falls on all kinds of areas (Landscape, Environment, Characters, Vehicle, FX). Some of them were done in shader, for others I implemented/maintained a code framework. Some features I was working on: Interior Cube Mapping, Water (Shader, Waves, Interaction), Foliage (Wind, Interaction), Character (Hair, Skin, Cloth), Ice Shader, Parallax Shader, Landscape up to 12 Layers, Runtime Virtual Texture, Imposter-System.
2020 - 2021	Wargaming - Unreal Engine 4 Senior-Engineer Wargaming I was working for Wargaming on an unannounced project. The project was done in Unreal Engine 4 with a very small team. For the first time, I gained experience working on an RTS game with Unreal, which had different challenges to solve (several Units instead of one main Pawn, Camera handling, Pathfinding, Outlining-HUD-FX, Fog of War).
2019 - 2020	Simulation - Unreal Engine 4 / Unity Senior-Engineer Vay I worked with Vay on Automobile-Simulations. For their Tele Driving-Platform they needed a Simulations-Framework, which was set up by Unreal Engine 4, Carla, Unity3D and ROS.
2019 - 2020	Point Cloud Kit Unreal Engine 4 - Plugin Freelancer - Unreal Engine As a side project, I've been working on a Point-Cloud render plugin for Unreal Engine. I build a framework where you can animate Points within a material shader (Location as well as Color). Particles are based on GPU which means a huge amount of Points can be rendered (up to 1 million). The Plugin is out on Epics Marketplace: Point Cloud Kit.
2018	LiDAR Unreal Engine 4 - Plugin Freelancer - Unreal Engine RealSynth I developed a LiDAR simulation Actor as a Plugin. The LiDAR system can be connected to ROS (Robot Operating System). Using simulated environments for AI training instead of going outdoor in the field for every single integration step, shortens the AI development time drastically. The LiDAR Actor can be set up for different resolutions and types (FOV, AngularRes, Noise, FPS).
2018	2048 Apex - Android Game Freelancer - Game Engineer Simply out of interest and by playing around with Android Studio I developed (~5 months) an arcade version of the famous 2048 Tile pushing game. In the main mode of 2048 Apex you have to gain Stars, but to get them you have to make thoughtful moves. It got more and more features: 3 game modes, 46 Challenges, hexagonal board, user Seed, color themes, landscape and portrait support, tablet support, and leader-boards. I love working with Android Studio, it is an amazing powerful IDE. It is available on the Google Playstore.

2012 - 2018	<p>Dreadnought - Unreal Engine 4 Game Engineer Yager-Development</p> <p>Starting in 2012 as a Prototype, with a very small team, we laid the foundations for the Free-To-Play game Dreadnought. For a while, we were struggling with the flight controls until I was adding a movement system that was based on physics forces combined with a WASD-shooter-like control schema, which made Dreadnought easily accessible for everyone. To visualize the damage on the ships persistently I integrated a Hit-Mask for impacts, based on the Unreal Engine 3 implementation but much more powerful: Impacts can have glowing edges and special repairing effects. I was responsible for the weapon system, which had to be replicated to the server for validation. A ship can hold up to ten or more weapons per group and with 16 ships in a battle, the amount of replication and the performance hit with all the projectiles was a challenge. I also did a lot of Gameplay coding for the different game modes and improved the Gamepad controls for PS4.</p>
2007 - 2012	<p>Spec Ops: The Line - Unreal Engine 3 Engine Programmer Yager-Development</p> <p>Working on one of the biggest triple-A-title produced in Germany was a very intense experience. Published by 2k in 2012 this game was not hitting the expected marks in the first 3 months, even so, it was extremely well-received (constant over 93% on steam). Today it is one of the cornerstones of modern storytelling in a video game and it added with the "phosphor-scene" a cultural meme to the genre. In this project, I was working on post-processing volumes for adding sandstorm effects, implementing a rendering mode for blending static cube-maps with dynamic rendering targets for faster reflection rendering. I also added a decal clustering system, an achievement manager, and a lot of Gameplay features like the blood HUD feedback with the shaders and dynamic fog volumes for grenades.</p>
2003 - 2007	<p>Ganymed Engine / Virtools Freelancer Programmer ITnB-Development</p> <p>After the insolvency of the former company Terratools, I founded with some colleagues a small company: ITnB (In Time and Budget). We did some smaller multimedia projects: An online Racing-Game, a demo for a Headphone company, a 3D Website for a Spa. I was also integrating a Physics-Engine into a client's 3D-Web-Engine. We were mostly using the Virtools-Engine, which was one of the first engines that were using a visual scripting language and could easily be extended with a solid C++ API. We were also creating our small 3D-Engine for prototyping (Ganymed Engine) which is based purely on C++ and DirectX. In Ganymed I was implementing a small shader demo (see under Resources).</p>
2001 - 2002	<p>Michael Schumacher Kart Racer 2002 - Virtools Programmer Terratools</p> <p>To create a "boxed-title" just in one year of production with a very small team was a challenge. We agreed that we could not rely on just the big name. The game itself should be fun to play and the quality had to be as high as we possibly could make it. I was responsible for vehicle physics. I added a ghost system for the best lap. I also did a lot of Gameplay scripting and coding and helped out with some AI work.</p>
Education	<p>Diploma in Computer Science 1995-2000 TFH-Berlin</p> <p>Chemical assistant (Chemielaborant) 1990-1994 Schering AG (Bayer-Pharma)</p>