JAMORN **SRIWASANSAK**

Graphics Engineer, Polyphony Digital Inc.

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Experience

Graphics Engineer, Polyphony Digital (Tokyo, Japan) **Aug 2020 - Now**

- Profiled, fixed software bugs, and optimized various parts of the Gran Turismo 7 source code including its run-time C++ code, PSSL shaders for PS4 and PS5, and an offline lightmap baking tool.
- Implemented and optimized screen-space ray marching-related effects.
- Implemented a GPU-based photon mapper for lens simulation.
- Implemented and improved performance by 5x-10x for post effects and materials that require accurate lens simulation.

Graphics Research Intern, Facebook Reality Labs (Redmond, WA , USA) **July 2019 - Oct 2019**

- Developed a fast spatio-temporal blue-noise sampling technique for sampling sparse pixels. (Patent Pending)

Graphics Research Intern, Polyphony Digital (Tokyo, Japan) **Aug 2018 - Sep 2018**

- Investigated and implemented several state-of-the-art real-time specular occlusion techniques using OptiX and OpenGL.

Graduate Research Student, The University of Tokyo (Tokyo, Japan) **Sep 2016 - Mar 2020**

- Investigated many-light rendering techniques, basis functions for precomputed radiance transfer and a novel data structure for accelerating photon mapping.
- Studied and implemented several research papers, mainly in the area of offline rendering. (Most of the implementations are available on my personal website.)

Contract Software Developer, Lumio3D (Bangkok, Thailand) **May 2015 - Dec 2015**

- Implemented a physically-based rendering framework with environment map pre-filtering on WebGL.
- Implemented fast approximate anti-aliasing, horizontal-based ambient occlusion, depth peeling order-independent transparency and high dynamic range bloom for devices without multiple render targets support.
- Implemented 3D mesh compression for progressive 3D mesh streaming.

Software Developer, VC Group (Bangkok, Thailand) **Jul 2014 - Aug 2014**

- Optimized Python code and MySQL stored procedures for analyzing Call Detail Record (CDR) resulting in a 5x increase in performance. This allows the program to keep up with the number of records required by the customer.

Developer Intern, Microsoft Innovation Center Thailand (Bangkok, Thailand) **Apr 2014 - Jun 2014**

- Developed three different Windows Phone Applications using Unity3D and Microsoft Presentation Foundation.

Education

Master of Information Science and Technology (GPA 4.00/4.00) University of Tokyo **Sep 2018**

- Studied and investigated many-light rendering techniques especially the weak singularities problem.

Bachelor of Computer Engineering (First Honor, GPA 3.67/4.00) Chulalongkorn University **May 2015**

Publications

Jamorn Sriwasansak, Adrien Gruson, and Toshiya Hachisuka. “Efficient Energy-Compensated VPLs using Photon Splatting”. In: *Proceedings of the ACM on Computer Graphics and Interactive Techniques* 1.1 (2018), p. 16.

Projects

Mortar (2020)	A physically-based renderer with an agnostic backend (supports both DirectX12 and Vulkan). With the help of DXR and Vulkan ray tracing API, the renderer supports a next-event estimation path tracer with a standard GGX microfacet material for both reflection and refraction. It also features recent techniques such as a Screen space Blue-Noise Distribution [Heitz et al. 2019] and ReStir (Spatio-temporal resampling) [Bitterli et al. 2020].
Wurst Renderer (2019)	A C++ offline rendering framework that implements several complex rendering papers (e.g. BDPT [Veach 1998], PSSMLT [Kelemen et al. 2002], PRT [Sloan et al. 2002], ..). Due to confidentiality of some projects, only the old source code is provided on github.
Unified Particle Engine (2018)	A CUDA and OpenGL implementation based on unified particle physics [Macklin et al. 2014]. It supports rigid bodies, ropes, clothes, fluids and deformable bodies.
EVPLP (2017)	An OpenGL and OptiX rendering framework that contains several rendering techniques such as path tracing, instant radiosity (Virtual Point Lights [Keller 1997] and Virtual Spherical Lights [Hasan et al. 2009]) and Progressive Photon Mapping [Hachisuka et al. 2008].

For a complete list, please visit jamorn.me

Awards and Honors

- Japanese Government (MEXT) Scholarship (2016 - 2020)
- First Honor Degree, Computer Engineering, Chulalongkorn University (2015)
- Outstanding Student Award, Computer Engineering, Chulalongkorn University (2014)
- Proceeded to ACM-ICPC Thailand round (2013)
- Bronze Medal, 6th Thailand Olympiad in Informatics (2010)

Skills

Proficient:	C++
Experienced:	Python, JavaScript, WebGL, OpenGL, Vulkan, DirectX12, DXR, NVIDIA's OptiX, Embree, CUDA, GLSL, HLSL, PSSL, Git, Playstation Razor, PIX (DX12 Debugger), NSight

Languages

Thai:	Native
English:	Working Proficiency, TOEFL-iBT: 109 (2019)