

# JAMORN SRIWASANSAK

Ray Tracing Engineer, NVIDIA

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🏠 [jamorn.me](http://jamorn.me)

🌐 [github.com/jamornsriwasansak](https://github.com/jamornsriwasansak)

## Experience

Mar 2022 - Now

**Ray Tracing Engineer, NVIDIA** (Toronto, ON, Canada)

- TBD

Aug 2020 - Feb 2022

**Graphics Engineer, Polyphony Digital** (Tokyo, Japan)

- Fixed bugs and optimized Gran Turismo 7's run-time C++ code and PlayStation shaders.
- Implemented and optimized screen-space ambient occlusion and screen-space reflection. (The latter is not used in the final product)
- Worked on lens flare (ghosting flares) system. Implemented a GPU-based photon mapper for reference lens flare simulation. Implemented a real-time lens flare system which approximates the result based simulation data.
- Developed a method for rendering dispersion effects from front car headlights. This new method outperformed the previous by 5x-10x.
- Optimized photos saving speed for Scape (Gran Turismo 7's photo mode).

July 2019 - Oct 2019

**Graphics Research Intern, Facebook Reality Labs** (Redmond, WA, USA)

- Developed fast spatio-temporal blue-noise sampling techniques for sampling sparse pixels.
- The internship resulted in two patents.

Aug 2018 - Sep 2018

**Graphics Research Intern, Polyphony Digital** (Tokyo, Japan)

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

Sep 2016 - Mar 2020

**Graduate Research Student, The University of Tokyo** (Tokyo, Japan)

- 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.)

May 2015 - Dec 2015

**Contract Software Developer, Lumio3D** (Bangkok, Thailand)

- Implemented a physically-based rendering framework 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.

Jul 2014 - Aug 2014

**Software Developer, VC Group** (Bangkok, Thailand)

- 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.

Apr 2014 - Jun 2014

**Developer Intern, Microsoft Innovation Center Thailand** (Bangkok, Thailand)

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

## Education

Sep 2018

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

- Studied and investigated many-light rendering with virtual point lights. The thesis focused on the weak singularities problem.

May 2015

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

# 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.

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# Patents

Todd Goodall, Anton S. Kaplanyan, Anjul Patney, **Jamorn Sriwasansak**. "Efficient Motion-Compensated Spatiotemporal Sampling". March 2022

Todd Goodall, Anton S Kaplanyan, Anjul Patney, **Jamorn Sriwasansak**, Thomas Sebastian Leimkuhler. "Blue Noise Mask for Video Sampling". March 2022

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# Projects

<b>Mortar</b> (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].
<b>Wurst Renderer</b> (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.
<b>Unified Particles</b> (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.
<b>EVPLP</b> (2017)	An OpenGL and OptiX rendering framework that contains several rendering techniques such as path tracing, Virtual Point Lights [Keller 1997], Virtual Spherical Lights [Hasan et al. 2009] and Progressive Photon Mapping [Hachisuka et al. 2008].

For a complete list, please visit [jamorn.me](http://jamorn.me)

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# Skills

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

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# Languages

<b>Thai:</b>	Native
<b>English:</b>	Working Proficiency, TOEFL-iBT: 109 (2019)

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# 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)
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