PHILIPPE WEIER

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Philippe Weier
WeiPhil

Education

2021 – *Now* **PhD Student,** Saarland University (Universität des Saarlandes), Germany
Computer Graphics Lab, advised by Prof. Dr.-Ing. Philipp Slusallek
Focus : Efficient Light Transport Simulation, Differentiable Rendering, Appearance Modelling

2017 – 2020 **Master in Computer Science Engineering,** EPFL, Switzerland.
Advanced Computer Graphics, Digital 3D Geometry Processing, Mathematical Foundation of Signal Processing, Distributed Algorithms, Signal Processing for Communications, Machine Learning, Cryptography and Security, Audio Signal Processing and Virtual Acoustics.
Thesis: *Optimised Path Space Roughening*

2016 – 2017 **3rd year Bachelor in Computer Science Engineering,** University of Granada , Spain
Computer Graphics, Operating Systems, Digital Image Processing, Software Engineering, Artificial Intelligence, Multiprocessor Architecture, Network Security.

2014 – 2016 **1st and 2nd year Bachelor in Computer Science Engineering,** EPFL, Switzerland.
Algorithmic, Computer Architecture, Functional Programming, Parallelism and Concurrency, Probability and Statistics, System Oriented Programming.

Experience

2024 *April - Dec* **Research Intern,** Google, Zürich
Working on physically-based inverse rendering
Supervised by Delio Vicini

2023 *April - Sept* **Research Intern,** Adobe Systems, France
Working on hybrid neural representation for physically-based rendering
Supervised by Elie Michel and Tamy Boubekeur

2022 *May - Dec* **Research Intern,** Intel Graphics Lab, Germany
Worked on neural representation for appearance filtering and level of details
Supervised by Anton Kaplanyan and Lingqi Yan

2020 - *2021* **Rendering Researcher,** Weta Digital, New Zealand
Worked on the in-house physically-based renderer Manuka

2020 *Feb - Aug* **Research Intern,** Weta Digital, New Zealand
Developed an improved formulation of roughening designed for production scale scenes in Manuka
Supervised by Johannes Hanika, Marc Droske and Wenzel Jakob

2019 *Sep - Dec* **Research Student,** Realistic Graphics Laboratory (EPFL), Switzerland
Mesh-based pre-filtering of Complex Assets
Supervised by Guillaume Loubet and Wenzel Jakob

2019 *Feb - Aug* **Research Intern,** Unity Labs Grenoble, France
Efficient Rendering of Anisotropic Layered Materials using an Atomic Decomposition with Statistical Operators
Supervised by Laurent Belcour

2017- 2019 **Teaching Assistant,** EPFL, Switzerland
Assisted the Professor with course, homeworks and exam material preparation in Computer Networks.

2018 Jul - Sep **Research Intern,** ELCA Informatique SA Lausanne, Switzerland
Designed and Implemented a Secure Voice Authentication Mobile Application using modern Machine Learning techniques for Android and iOS.

Publications

2024 — **N-BVH: Neural ray queries with bounding volume hierarchies**
ACM Transactions on Graphics (SIGGRAPH 2024 Conference Track)
Philippe Weier, Alexander Rath, Élie Michel, Iliyan Georgiev, Philipp Slusallek, Tamy Boubekeur

2023 — **Neural Prefiltering for Correlation-Aware Levels of Detail**
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2023)
Philippe Weier, Tobias Zirr, Anton Kaplanyan, Ling-Qi Yan, Philipp Slusallek

2022 — **EARS: Efficiency-Aware Russian Roulette and Splitting**
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2022)
Alexander Rath, Pascal Grittmann, Sebastian Herholz, Philippe Weier, Philipp Slusallek

2021 — **Optimised Path Space Regularisation**
In Computer Graphics Forum (Proceedings of Eurographics Symposium on Rendering)
Philippe Weier, Marc Droske, Johannes Hanika, Andrea Weidlich, and Jiří Vorba.

2020 — **Rendering Layered Materials with Anisotropic Interfaces**
In Journal of Computer Graphics Techniques
Philippe Weier, Laurent Belcour

Personal Projects

2023 - *Now* — **NTWR: The Neural Twist Renderer**
A GPU physically-based renderer written in Cuda augmented with neural features

2020 - *Now* — **Taranaki**
A physically-based toy renderer in Rust developped in my free time.

2019 — **Qulkan**
A GPU Oriented Prototyping tool in modern C++17 with a simple and flexible interface for more complex software or research validation tools.

2018 — **Procaryota**
A 2D space-shooter like game in C# made for fun in Unity.

2018 — **Lotr Army Companion**
An unofficial companion app for the table-top game Lord of The Rings. A full stack web application written in Javascript (React), MySQL and Python.

Skills

Programming

- *C++ (Cuda, Vulkan)*
- *Rust*
- *Python*
- C#, C (Embedded), Scala, Java
- Assembly *(MIPS, ARM)*
- Javascript *(React)*, HTML, CSS, MySQL

Code Quality

- Continuous Integration, Tests
- Git, Docker

Languages

- *French, Swiss German (Mother Tongues)*
- *Spanish (fluent)*
- German (fluent)
- English (fluent)