Sébastien SPEIERER

Education

2015–2018	**EPFL - Switzerland**, *Master's in Communication Systems*, GPA: 5.29/6 Advanced computer graphics, Digital 3D geometry processing, High-performance computing, Computer vision, Distributed algorithms, Reinforcement learning in neural networks, Pattern classification and machine learning
2012–2015	**EPFL - Switzerland**, *Bachelor in Communication Systems*, GPA: 5.62/6 Object-oriented programming language (Java), Functional programming (Scala), Algorithms, Concurrency
2014–2015	**Carnegie Mellon University - USA**, *Exchange year in Computer Science*, GPA: 3.52/4 Computer graphics, Artificial intelligence, Applied stochastic processes, Fundamental of signal processing

Work Experience

Today	**RGL EPFL**, *Research Engineer* Mitsuba 3 development and differential rendering research.
Jun-Oct 2019	**Blue Brain Project**, *Visualization Software Engineer* Houdini pipeline development and differential rendering research.
2018 - Apr 2019	**Weta Digital**, *Rendering Researcher (6 months internship, 9 months full-time)* Research in the Manuka Renderer team on volume rendering and reflectance filtering techniques.
Jul-Sep 2017	**Pixar Animation Studios**, *Rendering Researcher internship* Conducted research on exploring and combining various approaches for many-lights sampling and path guiding.
Feb-Dec 2017	**RGL EPFL**, *Research Assistant* Mitsuba 2 development
Jul-Dec 2016	**Pixar Animation Studios**, *Rendering Software Engineer internship* Implementation of the Manifold Next Event Estimation in Renderman for efficient rendering of refractive caustics.

Publications and Projects

Siggraph 2022	**Dr.Jit: A Just-In-Time Compiler for Differentiable Rendering** ⤷ Wenzel Jakob, Sébastien Speierer, Nicolas Roussel, Delio Vicini
Siggraph 2022	**Differentiable Signed Distance Function Rendering** ⤷ Delio Vicini, Sébastien Speierer, Wenzel Jakob
Siggraph 2021	**Monte Carlo Estimators for Differential Light Transport** ⤷ Tizian Zeltner, Sébastien Speierer, Iliyan Georgiev, Wenzel Jakob
Siggraph 2021	**Path Replay Backpropagation: Differentiating Light Paths using Constant Memory and Linear Time** ⤷ Delio Vicini, Sébastien Speierer, Wenzel Jakob
CVPR 2021	**Wide-Depth-Range 6D Object Pose Estimation in Space** ⤷ Yinlin Hu, Sébastien Speierer, Wenzel Jakob, Pascal Fua, Mathieu Salzmann
Siggraph 2020	**Radiative Backpropagation: An Adjoint Method for Lightning-Fast Differentiable Rendering** ⤷ Merlin Nimier-David, Sébastien Speierer, Benoit Ruiz, Wenzel Jakob
2018	**Spatially-varying specular microstructures and reflectance filtering in a production renderer** ⤷ Master's Thesis supervised by Wenzel Jakob and Andrea Weidlich (Weta Digital)
2018	**Caustic Connection Strategies for Bidirectional Path Tracing** ⤷ Sébastien Speierer, Christophe Hery (Pixar), Ryusuke Villemin (Pixar), Wenzel Jakob
2016	**Metropolis Virtual Point Light Rendering** ⤷ Semester Project supervised by Wenzel Jakob

Computer skills

Languages	C++, Python, CUDA, C, Java, Scala, Bash
Graphics	Mitsuba, PBRT, OptiX, Houdini, Blender, RenderMan, OpenGL, GLSL, Unity, RSL, Katana, Nuke, Maya
Others	Git, Pytorch, Visual Studio, Matlab, Mathematica, Photoshop, LaTeX, Microsoft Office, Windows, Linux, MacOS

Languages, Interests, Film Credits and Award

Languages	French: Native Speaker, English: Near Native
Music	Classical Piano Degree, Cubase, Ableton Live, mixing, mastering, NOX Music ⤷
Film Credits	*Avengers: Endgame* and *Gemini Man* - Visual Effects, Weta Digital
Award	Carnegie Mellon University Dean's List (2015)