

Merlin Nimier-David

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PhD student at EPFL

Education

- 2017–present **PhD student**, *Swiss Federal Institute of Technology (EPFL)*, Lausanne.
Realistic Graphics Laboratory, advised by Prof. Wenzel Jakob
Focus: differentiable rendering and its applications, high-performance physically based rendering
Actively participating in the development of the Mitsuba 2 open-source research renderer
- 2014–2017 **Master in Computer Science**, *Swiss Federal Institute of Technology (EPFL)*, Lausanne.
Computer Graphics, Machine Learning, Big Data, Markov Chains, Natural Language Processing, Intelligent Agents, Concurrent Algorithms, Distributed Systems, Functional Programming
GPA: 5.79 out of 6
- 2013–2014 **Bachelor in Computer Science Engineering**, *INSA Lyon, France*.
Ranked first among computer science students (GPA: 16.55 out of 20)
Software Engineering, Concurrent Programming, UNIX, Networks, Databases, Linear Algebra
- 2011–2013 **Science foundation courses**, *National Institute of Applied Sciences (INSA)*, Rouen, France.
- 2011–2017 **Massive Online Open Courses (MOOCs)**, *Stanford, Duke University, EPFL*, via Coursera.
Machine Learning, Image and Video Processing, Game Theory, General Game Playing

Publications

- 2021 **Material and Lighting Reconstruction for Complex Indoor Scenes with Texture-space Differentiable Rendering**.
Merlin Nimier-David, Zhao Dong, Wenzel Jakob, Anton Kaplanyan.
In Proceedings of EGSR 2021.
- 2020 **Radiative Backpropagation: An Adjoint Method for Lightning-Fast Differentiable Rendering**.
Merlin Nimier-David, Sébastien Speierer, Benoît Ruiz, Wenzel Jakob.
In Transactions on Graphics (Proceedings of SIGGRAPH 2020).
- 2019 **Mitsuba 2: A Retargetable Forward and Inverse Renderer**.
Merlin Nimier-David*, Delio Vicini*, Tizian Zeltner, Wenzel Jakob.
In Transactions on Graphics (Proceedings of SIGGRAPH Asia 2019). (* joint first authors)
- 2016 **Building and Animating User-Specific Volumetric Face Rigs**.
Alexandru-Eugen Ichim, Ladislav Kavan, Merlin Nimier-David, Mark Pauly.
In Proceedings of ACM SCA 2016.

Fellowships & awards

- 2021 **EGSR 2021 Best Presentation Award**.
For the presentation of *Material and Lighting Reconstruction for Complex Indoor Scenes with Texture-space Differentiable Rendering*.
- 2020–2021 **Facebook Graduate Fellowship**.
Program designed to “encourage and support promising doctoral students who are engaged in innovative and relevant research in areas related to computer science and engineering”. 2% of applicants were selected.
- 2011–2013 **Euris Foundation Scholarship**.
Merit-based scholarship supporting the first two years of higher education.

Experience

- 2020–present **Technical Papers Reviewer**.
SIGGRAPH 2020, SIGGRAPH Asia 2020 & 2021, HPG 2021 paper committee member

- June–Sep 2020 **Research Intern, NVIDIA Research.**
 - Supervised by Alexander Keller and Thomas Müller
- June–Sep 2019 **Research Intern, Facebook Reality Labs.**
 - Supervised by Anton Kaplanyan
 - Differentiable GPU rendering for joint material and lighting estimation from real photographs
- 2015–2021 **Teaching Assistant (Master and Bachelor level), EPFL.**
Advanced Computer Graphics, Numerical Algorithms for Visual Computing, Machine Learning, ...
- Feb–Aug 2017 **Master Thesis, Cornell University.**
 - *Rendering Procedural Microstructure using Adaptive Gaussian Processes*
 - Supervised by Steve Marschner, Bruce Walter and Wenzel Jakob
 - Physically Based Rendering: appearance modeling for complex specular microstructure using procedural generation and Gaussian Processes
- Fall 2016 **Software Engineer Intern in Research, Google Research.**
 - Computational Imaging team led by Peyman Milanfar, co-supervised by Michael Elad
 - Researched, implemented and optimized an experimental style-transfer algorithm
- 2016 **Research assistant, Realistic Graphics laboratory, EPFL.**
 - Assisted Prof. Wenzel Jakob in the early development of Mitsuba 2, an open-source research renderer
- 2015–2016 **Research assistant, Computer Graphics & Geometry laboratory, EPFL.**
 - Under the supervision of Prof. Mark Pauly, assisted PhD student Alexandru Eugen Ichim on research projects for face capture and realistic simulation
 - Designed and assembled a photogrammetry rig capable of scanning human facial expressions into high-quality 3D meshes in order to collect training data
- Summer 2015 **Software Engineer Intern, Google.**
 - Measurably improved Google Search backend performance using statistical methods
 - Quickly familiarized with a highly complex C++ codebase, internal tools & libraries
 - Produced testable code allowing for performance and search results quality assessment
 - Shipped Google-scale, production-ready code
- Summer 2014 **Software Engineer Intern, AnyFetch.**
 - Designed and implemented a Node.js library used as a foundation for all client apps
 - Conducted code reviews and contributed to open source projects
- 2011–2013 **Founding member, Quantic Telecom.**
 - Grew from 0 to 600+ members to become France's largest non-profit Internet Service Provider
 - Designed and developed signup process, user experience, members management tools

Side projects

- 2018–2019 Competing regularly in computer security competitions (CTFs) with team polyg10ts
- 2014 Competed in SWERC 2014 (ACM ICPC – international programming contest)
- 2014, 2013 Won French hackathons Fhactory and Hack Hours
- BlenderBQ Leap-Motion and voice-controlled 3D modeling tool using Blender
- Hobbies Computer security, photography, graphic design, finance, MOOCs

Skills

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| Programming <ul style="list-style-type: none"> ○ C++ (performance-oriented) ○ Python (scientific libraries) ○ Mathematica, Matlab, LaTeX ○ Scala, Java, JavaScript (Node.js) ○ HTML5, CSS3, PHP, SQL | Languages <ul style="list-style-type: none"> ○ French (native) ○ English (fluent – TOEIC 990/990) ○ Spanish (beginner) |
| Systems <ul style="list-style-type: none"> ○ Debian, OSX, Bash scripting ○ Distributed systems ○ API design | Code quality <ul style="list-style-type: none"> ○ Git ○ Tests and documentation ○ Code reviews, continuous integration |