

Antoine Webanck

Researcher in Computer Graphics

Lyon

France

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Research interests

I am interested in **Physically Based Rendering (PBR)**, and more specifically in volumetric/**participating media** rendering with **Monte Carlo** methods. I notably want to diversify **closed-form integration** and **sampling** methods, and to broaden delta/ratio tracking approaches to allow **heterogeneous media** to be rendered efficiently and consistently.

Education

- 2019 **PhD in Computer Science**, *Université Claude Bernard Lyon 1*, Lyon, France.
Subject: procedural generation of atmospheric effects
Advisors: Eric Galin and Eric Guérin
- 2015 **Master's Degree in Computer Science – Computer Graphics (Honors)**, *Université de Strasbourg*, Strasbourg, France.
- 2013 **Bachelor's Degree in Computer Science (Honors)**, *Université de Strasbourg*, Strasbourg, France.
- 2010 **Classe Préparatoire aux Grandes Écoles**, *Lycée Kléber*, Strasbourg, France.

Work experience

- 2021 **Research engineer**, *Université Claude Bernard Lyon 1, LIRIS*, Lyon, France.
Theme: visualization, exploration and analysis of urban data and models
Project: Virtual City (VCity)
- 2019–2021 **Postdoctoral researcher**, *CNRS, LIRIS*, Lyon, France.
Theme: sampling, physically based quasi-Monte Carlo rendering, heterogeneous participating media
Project: ANR *Comprehensive Analysis of Light Transport Operators for image synthesis (CaLiTrOp)*
- 2018–2019 **Assistant lecturer**, *INSA*, Lyon, France.
Practical courses in Computer Science
Object Oriented Programming in C++, Advanced Algorithmics for AI and Graphs, Matrix Calculus and Rendering
- 2015–2018 **Teaching assistant**, *Université Claude Bernard Lyon 1*, Lyon, France.
Tutorials and practical courses in Computer Science
Unix, Algorithmics, Functional Programming, Programming in C, C++, Java, Scheme
- 2016–2017 **Scientific popularization**, *Children's scientific congress*.
Introducing children to research by preparing them to talk to their pairs during a scientific congress on the theme of space
- 2016 **Scientific popularization**, *Maths à Modeler*, Lyon, France.
Introduction to research in Mathematics and Theoretical Computer Science directed towards primary students
- 2015 **Research internship**, *LIGUM*, Montréal, Canada.
Six-months internship on the animation of complex volumetric scenes with the OpenGL and Cuda Gigavoxels library.
Advisors: Pierre Poulin and Pascal Schreck
- 2014 **Developer internship**, *Euro Information Développements*, Schiltigheim, France.
Three-months internship on communication with development teams to measure the impact of a new generalized parameterization tool.

- 2013 **Research internship**, *Icube laboratory*, Strasbourg, France.
Two-months internship on the development of an OpenGL application to build and subdivide curves, surfaces and volumes Box-splines.
Advisor: Dominique Bechmann
- 2012 **Developer internship**, *Caldera*, Eckbolsheim, France.
Three-months internship on the computation of the limits of the range of visible colors.
Advisor: Arnaud Fabre

Publications

- 2022 Basile Fraboni, Antoine Webanck, Nicolas Bonneel, and Jean-Claude lehl. Volumetric Multi-View Rendering. *Computer Graphics Forum* 41.2 (2022). URL: <https://bfraboni.github.io/eg2022/data/volmvpt-eg2022.pdf>.
- July 2020 Loïs Paulin, Nicolas Bonneel, David Coeurjolly, Jean-Claude lehl, Antoine Webanck, Mathieu Desbrun, and Victor Ostromoukhov. Sliced Optimal Transport Sampling. *acm Transactions on Graphics* 39.4 (July 2020). ISSN: 0730-0301. URL: <https://hal.archives-ouvertes.fr/hal-02565352/document>.
- July 2019 Antoine Webanck. Procedural generation of atmospheric effects. PhD thesis. Université de Lyon, July 2019. URL: <https://tel.archives-ouvertes.fr/tel-02454037/file/TH2019WebanckAntoine.pdf>.
- May 2018 Antoine Webanck, Yann Cortial, Eric Guérin, and Eric Galin. Procedural Cloudscapes. *Computer Graphics Forum* 37.2 (May 2018), 431–442. DOI: 10.1111/cgf.13373. URL: <https://hal.archives-ouvertes.fr/hal-01730789/document>.
- October 2017 Yann Cortial, Antoine Webanck, Eric Guérin, Adrien Peytavie, and Eric Galin. Modélisation procédurale de nuages multigenre. *Journées Françaises d'Informatique Graphique*. October 2017. URL: <https://hal.archives-ouvertes.fr/hal-01813228/file/Cortial2017.pdf>.

Communications

- 24 Nov. 2022 **Contest**, *journées Françaises d'Informatique Graphique (j.FIG)*, Sophia Antipolis, France.
Shader Grasse Jasmin (third price)
- 19 April 2018 **Presentation**, *Eurographics*, Delft, Netherlands.
Procedural Cloudscapes
- 9 Nov. 2017 **Poster**, *Journée des Thèses (JdT)*, LIRIS.
Génération procédurale d'effets atmosphériques

Responsibilities

- 4 Apr. 2019 **Member of the procedural rendering workgroup**, *Journée thématique du GdR IG-RV - Modélisation Procédurale*, LIRIS.
- 2017–2018 **Elected representative of the PhD students at the Laboratory Council**, LIRIS.
 - Organization of five scientific junior seminars
 - Member of the PhD Committee
 - Member of the Organization Committee of the *Journée des Thèses (JdT)*
 - Animation and management of the official website of the PhD students
- 2017 **Student Volunteer**, *Eurographics*, Lyon, France.
- 2016 **Reviewer**, *Journée des Thèses (JdT)*, LIRIS.

Skills

- Languages French (native speaker), English (fluent)
- Programming C/C++, Python, OpenGL, GLSL, LaTeX
- Systems Linux, Windows