

# Pierre Mézières

## PhD Student in computer graphics



### International publications

#### - Recursive analytic spherical harmonics gradient for spherical light

Pierre Mézières, Nicolas Mellado, Loïc Barthe, Mathias Paulin  
In Computer graphics Forum (Presented at Eurographics 2022)

#### - Harmonics Virtual Lights: fast projection of luminance field on spherical harmonics for efficient rendering

Pierre Mézières, François Desrichard, David Vanderhaeghe, Mathias Paulin  
In Computer graphics Forum 2022

#### - Efficient spherical harmonic shading for separable BRDF

Pierre Mézières, Mathias Paulin  
In ACM Digital Library (Presented at Siggraph Asia 2021)

More information on [pierremezieres.github.io](https://pierremezieres.github.io)

### Education

Since Oct.  
2019

#### PhD thesis / [STORM](#) - IRIT / Université Paul Sabatier Toulouse

- Lighting modeling and simulation for real-time spherical harmonics based rendering.
- Advisor: [Pr. Mathias Paulin](#).

From 2017  
to 2019

#### Master Degree - Computer Graphics and Image Analysis / [Université Paul Sabatier](#) Toulouse

- Computer graphics: rendering, geometry, animation.
- Image analysis and processing.
- Major of promotion. I received the [CIMI](#) excellence scholarships for both years.

From 2014  
to 2017

#### Licence Degree in computer science / [Université Paul Sabatier](#) Toulouse

- Graduated with honors.
- Major in the second and third year of the licence.

### Portfolio

#### Design of a real-time 3D engine "Rogue" (C++/OpenGL)

- Creation from scratch started during my master's degree.
- Oriented efficient prototyping for rendering.
- Main development platform for my PhD thesis.

#### Moment Based Rendering (C++/OpenGL)

- Implementation and comparison of six methods to compute shadows and transparency in real-time to highlight the moment-based rendering.
- Graduation project realized in group.

See more on [pierremezieres.github.io](https://pierremezieres.github.io)

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### Profile

PhD Candidate in computer graphics from IRIT (Institut de Recherche en Informatique de Toulouse). My PhD thesis focus on an efficient use of the spherical harmonics applied to real-time shading.

My current contributions cover direct and indirect lighting, including a little bit of differentiable rendering. An efficient use of the spherical harmonics for differentiable rendering sounds like a solid and promising avenue of research.

### Research interests

- Efficient rendering
- Spherical harmonics
- Global illumination
- Differentiable rendering

### Common use

- C / C++
- OpenGL
- glsl / hlsl
- Python

### Other

Tennis, Bicycle, Piano, Drums,  
Saxophone, Video games...