

# Wilhem Barbier

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## Education

### PhD in Computer Graphics

Université de Toulouse (2022-2026)

My research focuses on designing GPU algorithms to build and update data structures for real-time raytracing

### MSc in Computer Science and Applied Math

Ensimag, Grenoble (2020-2022)

Followed the *Mathematical Models, Graphics and Simulation* track, with a specialization in Computer Graphics

### BSc in Computer Science and Mathematics

Université de Toulouse (2017-2020)

## Experience

### Research intern, Adobe

March 2024-August 2024 (Paris, France)

Designed and implemented GPU algorithms for efficient raytracing of signed distance fields

This work was integrated within a consumer-facing product

### Research intern, Unity Technologies

February 2022-August 2022 (Grenoble, France)

Worked on extending Ptex (used in texture painting workflows) to non-quad meshes in a GPU-friendly manner

### R&D intern, ZEILT productions

June 2021-September 2021 (Remote)

Experimented with automated generation of lipsync animation from audio and text

Contributed to pipeline automation and solved rendering issues on an active production

### Part-time research intern, INRIA Grenoble

January 2020-May 2020 (Grenoble, France)

Implemented the initial prototype for a novel real-time global illumination solver

## Tech

Graphics APIs: **OpenGL 3+, Vulkan**

**GLSL** for shader development

GPGPU programming with **CUDA**

Low-level programming using **C++**

Performance analysis tools: **perf**, **NVIDIA Nsight**

**Python** for scripting tasks

## Languages

### English

Fluent

### French

Mother tongue

## Publications

Fused Collapsing for Wide BVH Construction  
*High Performance Graphics 2024*

Lipschitz Pruning for Hierarchical Simplification of SDFs  
*Eurographics 2024*

HTex: Per-Halfedge Texturing for Arbitrary Mesh Topologies  
*High Performance Graphics 2022*

A Data-Driven Paradigm for Precomputed Radiance Transfer  
*High Performance Graphics 2022*