Curriculum Vitae ir. Matthias **Moulin**

Personalia

Nationality:	Belgian	Birthdate:	15 January 1992
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Github	https://github.com/matt77hias - https://matt77hias.github.io/		

Experience *(in reverse chronological order)*

Jun 2020 -	Frostbite, EA Digital Illusions CE AB (DICE), Stockholm (Sweden) Rendering Software Engineer II – Image Quality (Frostbite Rendering) • **Technologies**: *DRS, Expression Shader pipelines, GI Material, Shader Graph pipelines*
Feb 2019 - Jun 2020	Frostbite, EA Digital Illusions CE AB (DICE), Stockholm (Sweden) Rendering Software Engineer I – Image Quality (Frostbite Rendering) • **Technologies**: *CPU/GPU Probes, Enlighten, Flux, GI Live Preview, PBR Materials*
Oct 2016 - Feb 2019	Department of Computer Science, KU Leuven, Leuven (Belgium) Rendering Research Engineer – Research Foundation - Flanders (FWO) • **Fellowship**: *PhD Fellowship fundamental research*
Oct 2015 - Sep 2016	Department of Computer Science, KU Leuven, Leuven (Belgium) Rendering Research Engineer – Computer Graphics Research Group (KU Leuven)

Education *(in reverse chronological order)*

2015 - 2020	KU Leuven, Leuven (Belgium) Doctor of Philosophy in Engineering (Computer Science) — **Not finished** • **Research topics**: *Acceleration data structures and heuristics for ray tracing queries, (Global illumination) light transport and (real-time) rendering algorithms.* **Supervisor**: prof. dr. ir. Philip Dutré • **Funding**: Research Foundation - Flanders (FWO) Oct 2016 - Sep 2020 Computer Graphics Research Group (KU Leuven) Oct 2015 - Sep 2016
2015 - 2016	Gemeentelijke Academie Wemmel, Wemmel (Belgium) Part-Time Arts Education - Music • **Major**: Electrical Guitar (Pop/Jazz)
2013 - 2015	KU Leuven, Leuven (Belgium) Master of Science in Engineering (Computer Science) — **Magna cum laude** (84.46%) • **Major**: Human Computer Interaction (Computer Graphics) • **Thesis**: Hybrid Kd-trees for Photon Mapping and Accelerating Ray Tracing (18.5/20) **Supervisor**: prof. dr. ir. Philip Dutré
2010 - 2013	KU Leuven, Leuven (Belgium) Bachelor of Science in Engineering — **Magna cum laude** (76.83%) • **Major**: Computer Science • **Minors**: Electrical Engineering and Business Management
2004 - 2010	Sint-Theresiacollege, Kapelle-op-den-Bos (Belgium) Algemeen Secundair Onderwijs (ASO) — **Magna cum laude** (84.1%) • **Major**: Science - Mathematics
2000 - 2010	Gemeentelijke Academie Grimbergen, Grimbergen (Belgium) Part-Time Arts Education - Music — **Magna cum laude** (81.6%) • **Major**: Alto Saxophone (Classical Music)

Publications *(in reverse chronological order)*

MOULIN M., DUTRÉ P.: On the use of Local Ray Termination for Efficiently Constructing Qualitative BSPs, BIHs and (S)BVHs, *The Visual Computer*, Volume 35, Issue 12, pp. 1809–1826, December 2019 (First online: July 2018).

MOULIN M.: Hybrid Kd-trees for Photon Mapping and Accelerating Ray Tracing, *Master's thesis*, Department of Computer Science, KU Leuven, Belgium, June 2015.
MOULIN M., BILLEN N., DUTRÉ P.: Efficient Visibility Heuristics for Kd-Trees Using the RTSAH, In *Eurographics Symposium on Rendering - Experimental Ideas & Implementations* (June 2015), Lehtinen J., Nowrouzezahrai D., (Eds.), The Eurographics Association, pp. 31–39.

Game credits and contributions *(in reverse chronological order)*

BioWare: Dragon Age: Dreadwolf, Electronic Arts, *Announced*.
Full Circle: Skate, Electronic Arts, *Announced*.
EA Tiburon: EA Sports PGA Tour, Electronic Arts, April 2023.
Motive: Dead Space, Electronic Arts, January 2023.
Criterion Games: Need for Speed Unbound, Electronic Arts, November 2022.
EA Vancouver: NHL 23, Electronic Arts, October 2022.
EA Vancouver, EA Romania: FIFA 23, Electronic Arts, September 2022.
EA Tiburon: Madden NFL 23, Electronic Arts, August 2022.
EA DICE, Criterion Games, EA Gothenburg, Ripple Effect Studios: Battlefield 2042, Electronic Arts, November 2021.
EA Vancouver: NHL 22, Electronic Arts, October 2021.
EA Vancouver, EA Romania: FIFA 22, Electronic Arts, September 2021.
EA Tiburon: Madden NFL 22, Electronic Arts, August 2021.
EA Vancouver, EA Romania: FIFA 21, Electronic Arts, October 2020.
Motive: Star Wars: Squadrons, Electronic Arts, October 2020.
EA Tiburon: Madden NFL 21, Electronic Arts, August 2020.
Ghost Games, Criterion Games: Need for Speed Heat, Electronic Arts, November 2019.
PopCap Games: Plants vs. Zombies: Battle for Neighborville, Electronic Arts, October 2019.
EA Vancouver, EA Romania: FIFA 20, Electronic Arts, September 2019.
EA Tiburon: Madden NFL 20, Electronic Arts, August 2019.
EA DICE: Battlefield V, Electronic Arts, November 2018. (*post-release*)
EA DICE: Star Wars Battlefront II, Electronic Arts, November 2017. (*post-release*)

Skills

Frameworks	D3D11, D3D12, OpenCV, OpenMP
Markup languages	HTML/CSS, Markdeep, Markdown, TeX/LaTeX
Modelling languages	OCL, UML
Programming languages	C (89/90, 99, 11/18, 23), C++ (98/03, 11/14, 17, 20, 23), C#, CUDA C/C++, Erlang, Haskell, J#, Java, JavaScript/TypeScript, Maple, Matlab/Octave, MIPS, Prolog, Python 2/3, Racket
Shading languages	GLSL, HLSL
Version control	Git, Mercurial, Perforce, SVN

Languages

Dutch	Mother tongue
English	Fluent speaker and writer
French	Moderate speaker and writer
Swedish	Basic speaker and writer

Past projects *(selected)*

MAGE v0	Rendering engine (*C++17, D3D11, HLSL*)
MAGE v1 *(WIP)*	Improved and extended remake built from the ground up (*C++23, D3D12, HLSL*)

Teaching assistantship

2016 - 2018	Computer Graphics: Project	[B-KUL-H07Z5A]
2016 - 2017	Capita Selecta Computer Science: Man Machine Interface	[B-KUL-H05N2A]
2016 - 2017	Problem Solving and Engineering Design, Part 3	[B-KUL-H01D4B]
2015 - 2016	Problem Solving and Engineering Design: Computer Science	[B-KUL-H01Q3C]