

Julio Marco

Assistant Professor

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Summary

I am an Assistant Professor and member of the Graphics and Imaging Lab at Universidad de Zaragoza, Spain. My research background covers light transport applications within the areas of computer graphics and computational imaging. Under the regime of transient light transport, I work on computational imaging applications for scene understanding. I currently work on non-line-of-sight imaging methods to recover information of scenes that are not directly visible to an observer by using transient light transport. On traditional steady-state light transport, I am interested on Monte Carlo methods for physically-based rendering, and material appearance modeling.

Education

2014–2018 **PhD in Informatics and Systems Engineering**, Universidad de Zaragoza, Spain.

2006–2013 **BSc and MSc in Informatics Engineering**, Universidad de Zaragoza, Spain.

2011–2012 **Computer Science Exchange Program**, Danmarks Tekniske Universitet.

PhD Thesis

Title *Efficient Methods for Computational Light Transport*

Advisors Diego Gutierrez & Adrian Jarabo

Defense October 2018

Master Thesis

Title *Transient Light Transport in Participating Media*

Advisor Adrian Jarabo

Defense December 2013




Research and academic experience

2022– **Assistant Professor at Departamento de Informática e Ingeniería de Sistemas**
Universidad de Zaragoza, Spain.

Research topics: Computational imaging, time-resolved light transport analysis, non-line-of-sight imaging methods.

- 2022 **Assistant Professor at Centro Universitario para la Defensa**
Academia General Militar, Spain.
 Research topics: Computational imaging, time-resolved light transport analysis, non-line-of-sight imaging methods.
- 2018–2022 **Postdoctoral researcher at Graphics and Imaging Lab**
Universidad de Zaragoza, Spain.
 Research topics: Transient imaging methods for non-line-of-sight reconstruction and appearance modeling for realistic materials.
- 2014–2018 **PhD student at Graphics and Imaging Lab**
Universidad de Zaragoza, Spain
Advisors: Diego Gutierrez, Adrian Jarabo.
 Research topics: Light transport simulation and transient imaging methods.
- Jul 2017 – **Research Intern at Adobe Research**
 Oct 2017 *San Jose, CA*
Advisor: Xin Sun.
 Research topic: Deep learning methods for material appearance modeling.
- Jun 2016 – **Research Intern at Microsoft Research Asia**
 Aug 2016 *Beijing, China*
Advisor: Xin Tong.
 Research topic: Deep learning methods for time-of-flight imaging.
- May 2014 – **Research Intern at Disney Research Los Angeles**
 Sep 2014 *Glendale, CA*
Advisor: Carol O’Sullivan.
 Research topic: Light transport simulation and noise perception on rendering.

Journal and peer-reviewed conference publications

- 2023 **Self-Calibrating, Fully-Differentiable NLOS Inverse Rendering** 
 Kiseok Choi, Inchul Kim, Dongyoung Choi, Julio Marco, Diego Gutierrez, Min H. Kim
Proceedings of SIGGRAPH Asia 2023
 Core A*
- Virtual Mirrors: Non-Line-of-Sight Imaging Beyond the Third Bounce** 
 Diego Royo, Talha Sultan, Adolfo Muñoz, Khadijeh Masumnia-Bisheh, Eric Brandt, Diego Gutierrez, Andreas Velten, Julio Marco
ACM Transactions on Graphics, Vol.42(4)
 (2022 indicators) IF 6.2, Q1 (11/108) in *Computer Science, Software Engineering*
- 2022 **Structure-Aware Parametric Representations for Time-Resolved Light Transport** 
 Diego Royo[†], Zesheng Huang[†], Yun Liang, Boyan Song, Adolfo Muñoz, Diego Gutierrez, Julio Marco ([†]*Equal contribution*)
Optics Letters, Vol. 47(19)
 IF 3.6, Q2 (31/100) in *Optics*

- 2021 **Virtual Light Transport Matrices for Non-Line-Of-Sight Imaging** [↗](#)
 Julio Marco, Adrian Jarabo, Ji Hyun Nam, Xiaochun Liu, Miguel Ángel Coscueluela, Andreas Velten, Diego Gutierrez
IEEE/CVF International Conference on Computer Vision
 Core A*
- 2020 **A General Framework for Pearlescent Materials** [↗](#)
 Ibón Guillén, Julio Marco, Diego Gutierrez, Wenzel Jakob, Adrian Jarabo
ACM Transactions on Graphics, Vol.39(6)
 IF 5.414, Q1 (9/108) in *Computer Science, Software Engineering*
- Compression and Denoising of Transient Light Transport** [↗](#)
 Yun Liang, Mingqin Chen, Zesheng Huang, Diego Gutierrez, Adolfo Muñoz, and Julio Marco
Optics Letters, Vol. 45(7)
 IF 3.776, Q1 (22/99) in *Optics*
- 2019 **Progressive Transient Photon Beams** [↗](#)
 Julio Marco, Ibón Guillén, Wojciech Jarosz, Diego Gutierrez, and Adrian Jarabo
Computer Graphics Forum, Vol.38(6)
 IF 2.116, Q2 (38/108) in *Computer Science, Software Engineering*
- 2018 **Second-Order Occlusion-Aware Volumetric Radiance Caching** [↗](#)
 Julio Marco, Adrian Jarabo, Wojciech Jarosz, and Diego Gutierrez
ACM Transactions on Graphics, Vol.37(2)
 IF 6.495, Q1 (1/107) in *Computer Science, Software Engineering*
- 2017 **DeepToF: Off-the-Shelf Real-Time Correction of Multipath Interference in Time-of-Flight Imaging** [↗](#)
 Julio Marco, Quercus Hernandez, Adolfo Muñoz, Yue Dong, Adrian Jarabo, Min H. Kim, Xin Tong, and Diego Gutierrez
ACM Transactions on Graphics, Vol.36(6)
 IF 4.384, Q1 (3/104) in *Computer Science, Software Engineering*
- Recent Advances in Transient Imaging: A Computer Graphics and Vision Perspective** [↗](#)
 Adrian Jarabo, Belen Masia, Julio Marco, and Diego Gutierrez
Visual Informatics, Vol.1(1)
 (2022 indicators) IF 3.0, Q2 (65/132) in *Computer Science, Software Engineering*
- Transient Photon Beams** [↗](#)
 Julio Marco, Ibón Guillén, Wojciech Jarosz, Diego Gutierrez, and Adrian Jarabo
Spanish Conference on Computer Graphics (CEIG) 2017
 Best Paper award (1 in 2)
- 2016 **Real-time Rendering on a Power Budget** [↗](#)
 Rui Wang, Bowen Yu, Julio Marco, Tianlei Hu, Diego Gutierrez, and Hujun Bao
ACM Transactions on Graphics, Vol.35(4)
 IF 4.088, Q1 (1/106) in *Computer Science, Software Engineering*
- 2014 **A Framework for Transient Rendering** [↗](#)
 Adrian Jarabo, Julio Marco, Adolfo Muñoz, Raul Buisan, Wojciech Jarosz, and Diego Gutierrez
ACM Transactions on Graphics, Vol.35(4)
 IF 4.096, Q1 (1/104) in *Computer Science, Software Engineering*

Posters, Workshops, Datasets

- 2019 **A Dataset for Benchmarking Time-Resolved Non-Line-of-Sight Imaging** [↗](#)
Miguel Galindo, Julio Marco, Matthew O'Toole, Gordon Wetzstein, Diego Gutierrez, and Adrian Jarabo
IEEE International Conference on Computational Photography Posters, 2019
- DeepToF: Off-the-Shelf Real-Time Correction of Multipath Interference in Time-of-Flight Imaging** [↗](#)
Julio Marco, Quercus Hernandez, Adolfo Muñoz, Yue Dong, Adrian Jarabo, Min H. Kim, Xin Tong, and Diego Gutierrez
IEEE International Conference on Computational Photography Posters, 2019
- 2018 **Towards Practical Rendering of Fiber-Level Cloth Appearance Models**
Adrian Alejandro, Carlos Aliaga, Julio Marco, Adrian Jarabo, and Adolfo Muñoz
Material Appearance Modeling Workshop, 2018
- 2017 **Intuitive Editing of Visual Appearance from Real-World Datasets** [↗](#)
Julio Marco, Ana Serrano, Adrian Jarabo, Belen Masia, and Diego Gutierrez
Material Appearance Modeling Workshop, 2017
- Second-Order Occlusion-Aware Volumetric Radiance Caching** [↗](#)
Julio Marco, Adrian Jarabo, Wojciech Jarosz, and Diego Gutierrez
ACM SIGGRAPH 2017 Posters
- Transient Photon Beams**
Julio Marco, Ibón Guillén, Wojciech Jarosz, Diego Gutierrez, and Adrian Jarabo
SIGGRAPH 2017 Posters
- 2014 **Theory and Analysis of Transient Rendering**
Adrian Jarabo, Julio Marco, Adolfo Muñoz, Raul Buisan, Wojciech Jarosz, and Diego Gutierrez
ACM SIGGRAPH 2014 Posters

Awards & Competitions

- 2019 **Honorable Mention Eurographics PhD Award**, awarded by Eurographics 2019.
- 2017 **Semifinalist at ACM Student Research Competition**, *Transient Photon Beams*, SIGGRAPH 2017 Posters.
- 2017 **Best Paper award (1 in 2), CEIG 2019**, *Transient Photon Beams*, Spanish Conference on Computer Graphics (CEIG) 2019.

Funded Projects

- 2022– ENLIGHTEN – European Non-Line-of-Sight Optical Imaging
Funded by European Defence Fund
- 2016–2021 REVEAL – Revolutionary Enhancement of Visibility by Exploiting Active Light-fields
Funded by Defense Advanced Research Projects Agency (DARPA)
- 2016–2020 CHAMELEON – Intuitive editing of visual appearance from real-world datasets
Programme: H2020 - European Research Council (ERC)

Service

PROGRAM CHAIR

2024 Spanish Computer Graphics Conference (CEIG)

PROGRAM COMMITTEE

2020, 2019 ACM SIGGRAPH Asia Technical Briefs and Posters

2024, 2022 Eurographics Short Papers

2023, 2022 International Conference on Computer Graphics Theory and Applications (GRAPP)

2022 DAGM German Conference on Pattern Recognition

2023, 2022 Computational Visual Media Conference (CVM)

2020, 2019, 2018 International Conference on Computer Graphics and Visualization (CGVCVIP)

2023 Computer Graphics International

2019, 2018 Spanish Conference on Computer Graphics (CEIG)

REVIEWER

ACM Transactions on Graphics, ACM SIGGRAPH, ACM SIGGRAPH Asia, ACM Transactions on Applied Perception, IEEE Transactions on Computational Imaging, IEEE Transactions on Pattern Analysis and Machine Intelligence, Eurographics, Computer Graphics Forum, Computers & Graphics, Pacific Graphics, Optics Letters, Optics Express, High Performance Graphics, ECCV, Asian Conference on Computer Vision, IEEE Transactions on Instrumentation and Measurement, Graphics Interface, Sensors, Applied Sciences, Computational Visual Media Conference.

OTHER

2018 Student Volunteer at SIGGRAPH Asia Program Committee meeting.

2014 Local committee member at Spanish Conference on Computer Graphics.

2013 Local committee member at Eurographics Symposium on Rendering.

Languages

Spanish **Native**

English **Fluent**