Ricardo Marroquim

Curriculum Vitae

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Education

2005-2008 **Doctorate in Systems Engineering and Computer Science**, *COPPE - Federal University of Rio de Janeiro*.

2002-2005 **Master in Systems Engineering and Computer Science**, *COPPE - Federal University of Rio de Janeiro*.

1996-2001 **Bachelor in Computer Science**, *Pontifical Catholic University of Rio de Janeiro*.

Appointments

since 2019 **Assistant Professor**, *Delft University of Technology, The Netherlands*.
Intelligent Systems Department
Faculty of Electrical Engineering, Mathematics and Computer Science
Tenured since 2021

Nov 2017 - Jun 2018 **Visiting Professor**, *University of Salerno, Italy*.
Department of Medicine and Surgery

2017-2018 **Associate Professor**, *Federal University of Rio de Janeiro, Brazil*.
Systems Engineering and Computer Science Department
Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering (COPPE)

2009-2017 **Assistant Professor**, *Federal University of Rio de Janeiro, Brazil*.
Systems Engineering and Computer Science Department
Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering (COPPE)

2008-2009 **ERCIM postdoctoral fellow**, *National Research Council, CNR-Pisa, Italy*.
Visual Computing Lab
Istituto di Scienza e Tecnologie dell'Informazione - ISTI

Languages

Portuguese	native language
English	fluent
Italian	fluent
French	intermediate
Dutch	intermediate

Online resources

webpage	https://marroquim.org
Google Scholar	https://scholar.google.com.br/citations?user=VNSYnOAAAAAJ&hl=en
ORCID	https://orcid.org/0000-0001-8299-7067

Qualifications

2019 English Language Test - C2

2021 University Teaching Qualification (BKO)

Research projects

2025-2029 **VR-Retrofit** - immersive technologies for high-fidelity digital twins to streamline the renovation of social housing within the energy transition.

Collaborators Faculty of Architecture (TU Delft), Pieter van Foreest Organisatie and several real estate contractors

Funding NWO - Dutch Research Council

2024-2028 **Immersive Tech Lab** - immersive technologies for collaboration and learning, and real-time rendering of massive virtual environments in VR.

Collaborators Erasmus University

Funding TU Delft-Erasmus University Rotterdam Convergence Call

2023-2027 **Aim@Epilepsy - AI-assisted 4D cortical assessment for Minimally invasive treatment of epilepsy** - real-time spatio-temporal visualisation of SEEG data for epilepsy treatment.

Collaborators Maastricht University, Maastro Clinic, Kempenhaeghe, and three industry partners

Funding NWO - Dutch Research Council

2022-2025 **e-Diploma - Electronic, didactic and innovative platform for learning based on multimedia assets** - design of innovative technologies for learning and user interaction in virtual environments.

Collaborators Universities in Spain, Estonia, Hungary, Portugal and social-innovation associations in Cyprus and Bulgaria

Funding EU HORIZON-CL2-2021

2019-2024 **Proeftuin op de Noordzee (Field lab in the North Sea)** - Visualisation of high-performance sailing data and 3D reconstruction of dynamic boat sails.

Collaborators TU Delft Sports Engineering Institute, Municipality of The Hague, KPN, TNO, the Sailing Innovation Centre, Svasek Hydraulics and the Royal Dutch Water Sports Association

Funding EFRO - Europees Fonds voor Regionale Ontwikkeling (EU)

2015-2019 **Acquisition and 3D printing of fine detailed historical artefacts** - novel methods to capture fine detailed models for museum exhibition and documentation.

Funding CNPq - Brazilian National Council for Scientific and Technological Development

2014-2016 **Visualisation of massive datasets via web streaming** - high-performance rendering of large point-clouds for 3D video streaming.

Collaborators HyperReality LLC Startup (California)

Funding Industrial funding

2013-2016 **Reflectance acquisition for cultural heritage applications** - novel techniques for low-cost acquisition of spatially varying reflectance functions of historic artefacts.

Funding FAPERJ - Research Support Foundation of the State of Rio de Janeiro, Brazil

2013-2015 **Real-time visualisation techniques for oil reservoirs** - high-performance GPU algorithms for visualisation of complex geological datasets.

Collaborators University of Calgary

Funding CNPq - Brazilian National Council for Scientific and Technological Development

2010-2015 **The Digital Bamberg** - digital twins of scientific instruments for virtual exhibition and education dissemination.

Collaborators	Brazilian National Science Museum
Funding	FAPERJ - Research Support Foundation of the State of Rio de Janeiro, Brazil

Courses

Current

since 2019	Computer Graphics, BSc, Coordinator and Instructor
since 2019	3D Computer Graphics and Animation, MSc, Coordinator and Instructor
since 2020	Computational Simulation, Minor, Coordinator and Sole Instructor
since 2019	Research Seminar Computer Graphics, MSc, Instructor

Previous at TU Delft

2019-2021	Visual Data Processing, CS Minor, Instructor
2019	Medical Visualisation, MSc, Instructor

Previous at UFRJ

2011-2018	Image Processing, BSc and MSc, Coordinator and Lead Instructor
2011-2018	Computer Vision, MSc, Sole Instructor
2010, 2011, 2015	Advanced Rendering, MSc, Sole Instructor
2010-2018	Game Programming, BSc and MSc, Sole Instructor
2012, 2013, 2017	Algorithm Design and Graph Theory, BSc, Instructor

Supervisions and co-supervisions

Postdoc	2 former, 1 current
PhD	13 former, 8 current
MSc	30 former, 6 current

Postdoc supervisions

2024-	Christoph Peters, *Aim@Epilepsy*
2022-2023	Pierre Ambrosini, *Erasmus MC convergence*
2022-2023	Xiao Wang, *Proeftuin op de Noordzee*

Current doctoral supervision

(expected graduation)

2029	Jiaqi Tang (Erasmus MC, co-supervisor), *Enhancing surgery with AR devices*
2029	Priyanka Singhvi, *Level-of-detail for virtual environments*
2029	Joris Rijsdijk, *Rendering and manipulating massive scenes*
2028	Fengshi Zheng, *Collaborative visualisations for XR*
2028	Tzu-Hsin Hsieh, *Enhanced design and interaction methods for virtual environments*
2027	Mika Zeilstra, *Micro-geometry exploitation for BRDF acquisition*
2027	Yang Chen, *Roughness dependent BRDFs*
2026	Amir Zaidi, *VR rendering techniques for improved scene understanding*

Former doctoral supervision at TU Delft

2019–2025 Mathijs Molenaar (teaching PhD), *Rendering large-scale environments efficiently*

2021–2025 Mark van de Ruit, *From colors to spectra and back again*

2019–2025 Xuejiao Luo, *Reconstruction, generation and exploration of digital content with deep neural features*

Former doctoral supervision at UFRJ

2017–2024 Rafael Romeiro, *Retinal pre-filtering for light field displays*

2019–2024 Pedro Asad, *A design study about winnowing neuronal hypotheses from the visual cortex*

2018–2024 Olaf Clausen, *Towards Predictive Virtual Prototyping: improving material representation for realistic rendering*

2018–2023 Diego Mazala, *A Method for tridimensional facial model composition*

2014–2018 Luiz Maurílio Maciel, *Monocular 3D reconstruction of sail flying shape using passive markers*

2014–2018 Vinícius Silva, *Concomitant hierarchy construction and rendering of large point clouds*

2012–2017 Andréa Lins, *Natural interfaces for animating 3D characters*

2012–2016 Leonardo Carvalho, *Inbetweening for 2D animation using guidelines*

2011–2014 Andreia Breda (co-supervisor), *Approximating facial physiognomy using smooth interpolation functions*

2010–2014 Felipe Moura de Carvalho, *Interactive cutaway rendering of corner-point models*

Current Master's supervision

(expected graduation)

2026 Charlie Ciaś, *Improving importance sampling for spectral rendering*

2027 Matei Găleșanu, *Extending NeuMIP with Alpha Prediction for Translucent Surfaces*

2027 Boris Annink, *Real-time 3D Gaussian Splatting for Mobiles*

2027 Jan Piotrowski, *Image-space Stylization in Path-space: Recovering Global Stroke Structure*

2027 Cenker Yakişir, *Fast GPU Construction of Merged-Node BVHs*

2027 Ismail Mušić, *Stepping Into the Mood of a Painting: Curator-Guided Generative AI for Immersive VR*

Former master's supervision at TU Delft

2025–2026 Tygo Spanhoff, *Neural Shadow Maps: investigating neural alternatives for shadow rendering*

2024–2026 Tobias van den Hurk (co-supervisor), *Accelerating path tracing in volumetric clouds using graph structures*

2024–2025 George Hellouin de Ménibus, *The three flatland problem: HUD content for augmented reality multiplicative light field displays*

2024–2025 Joris Rijsdijk, *Stochastic Gaussian splatting*

2024–2025 Patrick Hibbs, *Efficient ray tracing of micro-Meshes*

2023–2025 Paul Adriaanse, *The pyramidic microfacet BRDF*

2022–2025 Andor Michels (co-supervisor), *Interpolating specular highlights from reflectance field data*

2024–2025 Medard Szilvásy, *Dynamic watercolour painting on 3D surfaces*

2024–2025 Jiaqi Tang, *ISITLeap: infrared surgical instrument tracking system using Magic Leap 2 in augmented reality*

2024–2025 Nils van Veen (co-supervisor), *Shape correspondences and example-based modelling for boomerang design*

2023–2024 Yimin Zhou, *CPU-based ray tracing for semiconductor structures*

2023–2024 Xiang Gao, *An automatic registration approach for ventricle insertion navigation using the HoloLens2*

2023–2024 Lyanne de Haas, *Pyramidic microfacets*

2021–2022 Pieter Kools (co-supervisor), *Physics-based sail reconstruction from 3D-markers*

2020–2021 Nejc Maček, *Real-time relighting of human faces with a low-Cost setup*

2020–2021 Zhoufan Jia, *Fast approximation of the inverse reflector problem*

2020–2021 Danfeng Mu, *Sail shape visualisation*

2020–2021 Joost Wooning, *AR-assisted craniotomy planning for tumor resection*

2019–2020 Gijs Reichert (co-supervision), *A visual analysis framework for dinghy sailing: towards leveraging recorded training sessions*

Former master's supervision from previous appointment at UFRJ

2015-2017 Bruno Ferraz, *Real-time color projection for 3D models*

2014-2016 Pedro Asad, *Estimating hand poses from RGB-D data*

2014-2016 Abel Silva, *Real-time non-photorealistic rendering of smoothed particle hydrodynamics*

2013-2015 Gustavo Pfeiffer, *Probabilistic point matching*

2013-2015 Daniel Coutinho, *Per vertex BRDF acquisition*

2012-2014 Rafael Romeiro, *Forensic facial reconstruction using mesh template deformation with detail transfer over HRBF*

2012-2014 Renato Farias, *Point cloud rendering using jump flooding*

2012-2014 Fernando Silva, *JCHAR: Japanese character handwriting analyzer*

2011-2013 Daniel Ponciano, *Construction of semi-automatic 2D transfer function based on interactive explorations*

2008-2010 Alberto Barbosa Júnior, *A comparison of BRDFs models for photo mapping*

2008-2010 Felipe Moura de Carvalho, *Multiresolution rendering of point sampled surfaces*

Conference organization

Papers Chair — ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, i3D'2025

Std. Compet. Chair — High Performance Graphics, HPG'2025

General Chair — ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, i3D'2024

General Chair — Eurographics Symposium on Rendering, EGSR'2023

Local Chair — High Performance Graphics, HPG'2023

General Chair — Eurographics Workshop on Graphics and Cultural Heritage, GCH'2022

General Chair — Conference on Graphics, Patterns and Images, Sibgrapi'2017

Program Chair — Conference on Graphics, Patterns and Images, Sibgrapi'2015

Organiser — Workshop on Digitisation of Cultural Heritage (3 Editions), FGV and UFF, Rio de Janeiro, 2014, 2015, 2017

Editorial activities

since 2024 Specialised Associate Editor - ACM Journal on Computing and Cultural Heritage

2024-2025 Invited Editor for two special issues of Elsevier Computers & Graphics.

Presentations

2026 Invited Talk - *From Pixels to Perception*, University of Perugia

2025 Panellist - *VR, AR and AI: Role in Higher Education*, Town Hall, Nicosia, Cyprus

2025 Invited Talk - *Micro Appearance*, Institute of Pure and Applied Mathematics (IMPA)

2024 Invited Talk - *From Pixel to Reality*, Mato Grosso State University

2020 Invited Talk - *Turing Award 2019*, Federal University of Rio de Janeiro

2019 Invited Participant - *Community-led digital strategies for safeguarding and (re)building resilient cultural heritage*, Brighton

2018 Invited speaker - *I Colloquium on Funerary Archaeology*, National History Museum, Rio de Janeiro

2017 Invited speaker - *Seminars of the National History Museum: Games and Museums*, National History Museum, Rio de Janeiro

2017 Invited speaker - *III Computer Engineering Week*, CEFET, Petrópolis

2017 Invited speaker - *CEFET Computer Science Workshops*, CEFET, Rio de Janeiro

2016 Invited speaker - *II Mathematics Symposium of the South Fluminense Region - SIMMA*, Volta Redonda

2015 Invited speaker - *OktoberMat* - Pontifical Catholic University of Rio de Janeiro, Brazil

2012 Invited speaker - *SELCOMP Computer Science Week* - State University of Mato Grosso, Alto Araguaia

Awards and Recognitions

since 2022 Member of Global Heritage and Development (LDE)

2022 Best Papers Award - EG Workshop on Graphics and Cultural Heritage

2019 Best Papers Award - 16th GI AR/VR Workshop

2017 Honoured Professor (*Paraninfo*) of the Computer Engineering undergraduate class - UFRJ

2016 Honourable Mention (Second Place) Best Papers Award - Sibgrapi

2015-2017 Young Scientist of Our State, research fellowship of the State Funding Agency (Faperj)

2015 Supervisor - First Place Workshop of Works in Progress - Sibgrapi - student Daniel Coutinho

2015 Honoured Professor (*Paraninfo*) of the Computer Engineering undergraduate class - UFRJ

2013-2015 Research fellow of the National Research Council (CNPq)

2013 Supervisor - Third Place Workshop of Undergraduate Works - Sibgrapi - student Vitor de Andrade

2012 Supervisor - Third Place Workshop of Undergraduate Works - Sibgrapi - student Gustavo Pfeiffer

2008 Second Place Workshop of Theses and Dissertations - Sibgrapi

2008 ACM Student Research Competition Semi-finalist - ACM SIGGRAPH

2007 Co-Author of Best Master's Dissertation - Workshop of Theses and Dissertations - Sibgrapi - main author: André Maximo

2006 Petrobras Technology Prize - Second place in Exploration category

2005 Best Master's Dissertation - Workshop of Theses and Dissertations - Sibgrapi

Organisation activities

since 2024 Member of Education Transparency Workgroup - Computer Science - TU Delft

since 2024 Coordinator of the Computer Graphics Master Theme - TU Delft

2024-2025 Member of the Computer Science Bachelor Curriculum Committee - TU Delft

2024-2025 Member of the EEMCS Vision of Education writing team - TU Delft

since 2022 Member (currently Chair) of the Board of Studies - Computer Science - TU Delft

2012–2018 Head of the grant distribution committee - Systems Eng. and Computer Science - UFRJ

2013–2014 Assistant Head of the Computer Eng. undergraduate department - UFRJ

2011–2017 Head of the student admission committee - Systems Eng. and Computer Science - UFRJ

2014-2018 Head of the Computer Graphics Lab - COPPE - UFRJ

Public engagement

2024 Exhibitor - eXplore | a decade of sports innovation

2023 TU Delft news - TU Delft introduces unique experience app for sailing enthusiasts

2019 Research for exhibition - Pieter de Hooch in Delft. Uit de schaduw van Vermeer, Delft

2018 Exhibitor - 3D Printing the future, Science and Astronomy Museum (MAST), Rio de Janeiro

2015 Technology Coordinator - Chinese Junk Boat - The Orient in Brazil through the Collection of the National History Museum

2015 Faperj News - From Skull to Face: digital reconstruction

2014 Exhibitor - Reshaping History: A future for our past, FGV, Rio de Janeiro

Publications

Journals

[1] Adel Bartos, Anna Lobko, Atilla Çolak, Ricardo Marroquim, János Körmendi, Ádám Koncz, and Kristof Schwartz. The colors of perfectionism: Feedback mechanisms in personality and learning contexts. *Personality and Individual Differences*, 266:114120, 2027. ISSN 0191-8869. doi:https://doi.org/10.1016/j.paid.2026.114120.

[2] Joris Rijsdijk, Christoph Peters, Michael Weinmann, and Ricardo Marroquim. Gaussian point splatting. *ACM Transactions on Graphics (presented at Siggraph'26)*, 2026. doi:10.1145/3811272.

[3] Amir Zaidi, Ricardo Marroquim, Michael Weinmann, and Elmar Eisemann. Local surface approximation contours for virtual reality stylisation. *IEEE Transactions on Visualization and Computer Graphics (presented at IEEE VR'26)*, 2026. doi:10.1109/TVCG.2026.3680650.

[4] Jiaqi Tang, Abdullah Thabit, Theo van Walsum, Ricardo Marroquim, and Mohamed Benmahdjoub. Manual registration in ar-assisted surgical navigation: A comparative evaluation. *International Journal of Computer Assisted Radiology and Surgery*, 2025. ISSN 1861-6429. doi:10.1007/s11548-025-03410-4.

[5] Rafael Romeiro, Elmar Eisemann, and Ricardo Marroquim. Retinal pre-filtering for light field displays. *Computers & Graphics*, 123:104033, 2024. ISSN 0097-8493. doi:10.1016/j.cag.2024.104033.

[6] Olaf Clausen, Martin Mišiak, Arnulph Fuhrmann, Ricardo Marroquim, and Erich Latoschik. A practical real-time model for diffraction on rough surfaces. *Journal of Computer Graphics Techniques*, 13(1):1–27, June 2024. ISSN 2331-7418. URL http://jcgt.org/published/0013/01/01/.

[7] Pierre Ambrosini, Sara Azizian Amiri, Eliane Zeestraten, Tessa van Ginhoven, Ricardo Marroquim, and Theo van Walsum. 3d magnetic seed localization for augmented reality in surgery. *International Journal of Computer Assisted Radiology and Surgery*, 19:723–733, 2024. doi:10.1007/s11548-024-03066-6.

[8] Olaf Clausen, Yang Chen, Arnulph Fuhrmann, and Ricardo Marroquim. Investigation and simulation of diffraction on rough surfaces. *Computer Graphics Forum*, 2023. doi:10.1111/cgf.14717.

[9] Marcos Pieras, Ricardo Marroquim, Douwe Broekens, Elmar Eisemann, and Anna Vilanova. Comvis-sail: Comparative sailing performance visualization for coaching. *Computer Graphics Forum*, 42(1):86–100, 2023. doi:10.1111/cgf.14722.

[10] Diego Mazala, Claudio Esperança, and Ricardo Marroquim. Laplacian face blending. *Computer Animation and Virtual Worlds*, 2023. doi:10.1002/cav.2044.

[11] Nejc Maček, Baran Usta, Elmar Eisemann, and Ricardo Marroquim. Real-time relighting of human faces with a low-cost setup. *Proc. ACM Comput. Graph. Interact. Tech.*, 5(1), may 2022. doi:10.1145/3522626.

[12] Gijs M. W. Reichert, Marcos Pieras, Ricardo Marroquim, and Anna Vilanova. Stabilization and visual analysis of video-recorded sailing sessions. *Visual Computing for Industry, Biomedicine, and Art*, 4(26):1–10, Oct 2021. ISSN 2524-4442. doi:10.1186/s42492-021-00093-x.

[13] Luiz Maciel, Ricardo Marroquim, Marcelo Vieira, Kevyn Ribeiro, and Alexandre Alho. Monocular 3d reconstruction of sail flying shape using passive markers. *Machine Vision and Applications*, 32:1 – 21, 2021. ISSN 0932-8092. doi:10.1007/s00138-020-01149-3.

[14] Vinícius da Silva, Claudio Esperança, and Ricardo Marroquim. Omicron - oblique multipass hierarchy creation while navigating. *Computers & Graphics*, 84:42 – 54, 2019. ISSN 0097-8493. doi:10.1016/j.cag.2019.08.016.

[15] Pedro Asad, Ricardo Marroquim, and Andréa Lins e Lins Souza. On gpu connected components and properties: A systematic evaluation of connected component labeling algorithms and their extension for property extraction. *IEEE Transactions on Image Processing*, 28(1):17–31, Jan 2019. ISSN 1057-7149. doi:10.1109/TIP.2018.2851445.

[16] Olaf Clausen, Ricardo Marroquim, and Arnulph Fuhrmann. Acquisition and validation of spectral ground truth data for predictive rendering of rough surfaces. *Computer Graphics Forum*, 37(4):1–12, Jul 2018. doi:10.1111/cgf.13470.

[17] Daniel Coutinho, Ricardo Marroquim, Matteo Dellepiane, and Roberto Scopigno. Assisted color acquisition for 3d models. *Computers & Graphics*, 68:119–128, 2017. doi:10.1016/j.cag.2017.08.011.

[18] Leonardo Carvalho, Ricardo Marroquim, and Emilio Vital Brazil. Dilight: Digital light table - inbetweening for 2d animations using guidelines. *Computers & Graphics*, 65:31–44, 2017. doi:10.1016/j.cag.2017.04.001.

[19] Daniel Ponciano Santos, Marcos Seefelder Araújo, and Ricardo Marroquim. Graph-based interactive volume exploration. *Computers & Graphics (Special Issue of the XXIX Sibgrapi)*, 60:55–65, November 2016. doi:10.1016/j.cag.2016.06.007.

[20] Felipe Moura de Carvalho, Emilio Vital Brazil, Ricardo Marroquim, Mario Costa Sousa, and Antonio Oliveira. Interactive cutaways of oil reservoirs. *Graphical Models*, 84:1–14, 2016. ISSN 1524-0703. doi:10.1016/j.gmod.2016.02.001.

[21] Natália S. da Fonseca Martins, Luisa Tinoco Carneiro, Hugo de Mello Dantas, Claudio Esperança, Ricardo Marroquim, Liliam Fernandes de Oliveira, and João Carlos Machado. Generation of 3d ultrasound biomicroscopic images: technique validation and in vivo volumetric imaging of rat lateral gastrocnemius. *Research on Biomedical Engineering*, 31:85–96, 2015. ISSN 2446-4740. doi:10.1590/1517-3151.0209.

[22] Renan Machado e Silva, Claudio Esperança, Ricardo Marroquim, and Antonio Oliveira. Image space rendering of point clouds using the hpr operator. *Computer Graphics Forum*, 33(1):178–189, 2014. ISSN 1467-8659. doi:10.1111/cgf.12265.

[23] Matteo Dellepiane, Ricardo Marroquim, Marco Callieri, Paolo Cignoni, and Roberto Scopigno. Flow-based local optimization for image-to-geometry projection. *IEEE Transactions on Visualization and Computer Graphics*, 18(3):463–474, 2012. ISSN 1077-2626. doi:10.1109/TVCG.2011.75.

[24] Ricardo Marroquim, Gustavo Pfeiffer, Felipe de Carvalho, and Antonio Oliveira. Texturing 3d models from sequential photos. *The Visual Computer*, 28(10):983–993, 2012. ISSN 0178-2789. doi:10.1007/s00371-012-0743-7.

[25] André Maximo, Ricardo Marroquim, and Ricardo Farias. Hardware-assisted projected tetrahedra. *Computer Graphics Forum*, 29(3):903–912, 2010. ISSN 1467-8659. doi:10.1111/j.1467-8659.2009.01673.x.

[26] Ricardo Marroquim, André Maximo, Ricardo Farias, and Claudio Esperança. Volume and isosurface rendering with GPU-accelerated cell projection. *Computer Graphics Forum*, 27:24–35, 2008. ISSN 0167-7055. doi:10.1111/j.1467-8659.2007.01038.x.

[27] Ricardo Marroquim, Martin Kraus, and Paulo Cavalcanti. Efficient image reconstruction for point-based and line-based rendering. *Computer & Graphics*, 32:189–203, 2008. ISSN 0097-8493. doi:10.1016/j.cag.2008.01.011.

[28] Ricardo Marroquim and Paulo Cavalcanti. Triangulações adaptativas em multirresolução para objetos heterogêneos. *Boletim de Geociências da Petrobrás*, 14:327–345, 2006. URL https://bgp.petrobras.com.br/bgp/article/view/168.

[29] Ricardo Marroquim, Paulo Cavalcanti, Claudio Esperança, and Luiz Velho. Adaptive multi-resolution triangulations based on physical compression. *Communications in Numerical Methods in Engineering*, 21 (10):571–580, October 2005. doi:10.1002/cnm.774.

Conferences

[30] Tzu-Hsin Hsieh and Ricardo Marroquim. Elasticfit: Context-aware 3d object placement via vlm reasoning and generative adaptation. In *NeurIPS'26 - Annual Conference on Neural Information Processing Systems*, 2026. accepted.

[31] Tzu-Hsin Hsieh, Cassandra Visser, Elmar Eisemann, and Ricardo Marroquim. Skill-adaptive ghost instructors: Enhancing retention and reducing over-reliance in vr piano learning. In *CHI'26 - Conference on Human Factors in Computing Systems*, 2026. ISBN 9798400722783. doi:10.1145/3772318.3791437.

[32] Vincent Albertsson, Patrick Hibbs, Csanád Farkas, Qinxin Ren, Amir Zaidi, Ricardo Marroquim, Elmar Eisemann, and Rafael Bidarra. Puzzle playground – teaching vr interactions through a puzzle game. In *Games and Learning Alliance*, pages 381–387. Springer Nature Switzerland, 2025. ISBN 978-3-031-78269-5. doi:10.1007/978-3-031-78269-5_39.

[33] Olaf Clausen, Yang Chen, Arnulph Fuhrmann, and Ricardo Marroquim. Importance of Multi-modal Reflection Data for Predictive Rendering. In *Workshop on Material Appearance Modeling*. The Eurographics Association, 2024. ISBN 978-3-03868-264-6. doi:10.2312/mam.20241182.

[34] Terje Väljataga, Kai Pata, Andrea Annus, Michelle Andrade Calisto, Agueda Gomez Cambronero, Elmar Eisemann, Athina Kasini, Ricardo Marroquim, Inmaculada Remolar, László Szécsi, Amir Zaidi, and Rubén García Vidal. Exploring value and ethical dimensions of disruptive technologies for learning and teaching. In *Methodologies and Intelligent Systems for Technology Enhanced Learning, Workshops - 13th International Conference*, pages 107–116. Springer Nature Switzerland, 2023. ISBN 978-3-031-42134-1. doi:10.1007/978-3-031-42134-1_11.

[35] Jules van der Toorn, Ruben Wiersma, Abbie Vandivere, Ricardo Marroquim, and Elmar Eisemann. A New Baseline for Feature Description on Multimodal Imaging of Paintings. In *Eurographics Workshop on Graphics and Cultural Heritage*. The Eurographics Association, 2022. ISBN 978-3-03868-178-6. doi:10.2312/gch.20221223.

[36] Yoann Coudert-Osmont, Elmar Eisemann, and Ricardo Marroquim. Semi-Automatic Perspective Lines from Paintings. In *Eurographics Workshop on Graphics and Cultural Heritage*. The Eurographics Association, 2022. ISBN 978-3-03868-178-6. doi:10.2312/gch.20221219.

[37] Joost Wooning, Mohamed Benmahdjoub, Theo van Walsum, and Ricardo Marroquim. AR-Assisted Craniotomy Planning for Tumour Resection. In *Eurographics Workshop on Visual Computing for Biology and Medicine*. The Eurographics Association, 2021. ISBN 978-3-03868-140-3. doi:10.2312/vcbm.20211353.

[38] Danfeng Mu, Marcos Pieras, Douwe Broekens, and Ricardo Marroquim. SailVis: Reconstruction and Multifaceted Visualization of Sail Shape. In *EuroVis 2021 - Short Papers*. The Eurographics Association, 2021. ISBN 978-3-03868-143-4. doi:10.2312/evs.20211049.

[39] Gijs M. W. Reichert, Marcos Pieras, Ricardo Marroquim, and Anna Vilanova. Visual analysis of video-recorded dinghy sailing sessions. In *Proceedings of the 13th International Symposium on Visual Information Communication and Interaction*, VINCI '20, New York, NY, USA, 2020. Association for Computing Machinery. ISBN 9781450387507. doi:10.1145/3430036.3430070.

[40] Olaf Clausen, Gregor Fischer, Arnulph Fuhrmann, and Ricardo Marroquim. Towards predictive virtual prototyping: Color calibration of consumer VR hmds. In *16th GI AR/VR Workshop*, 2019. doi:10.2370/9783844068870.

[41] Asla Medeiros e Sá, Adolfo Ibanez Vila, Karina Rodriguez Echavarria, Ricardo Marroquim, and Vivian Luiz Fonseca. Accessible Digitisation and Visualisation of Open Cultural Heritage Assets. In *Eurographics Workshop on Graphics and Cultural Heritage*. The Eurographics Association, 2019. ISBN 978-3-03868-082-6. doi:10.2312/gch.20191349.

[42] Baran Usta, Leonardo Scandolo, Markus Billeter, Ricardo Marroquim, and Elmar Eisemann. A Practical and Efficient Approach for Correct Z-Pass Stencil Shadow Volumes. In *High-Performance Graphics - Short Papers*. The Eurographics Association, 2019. ISBN 978-3-03868-092-5. doi:10.2312/hpg.20191195.

[43] Olaf Clausen, Ricardo Marroquim, Arnulph Fuhrmann, and Holger Weigand. What is the reddening effect and does it really exist? In *Workshop on Material Appearance Modeling*. The Eurographics Association, 2019. ISBN 978-3-03868-080-2. doi:10.2312/mam.20191309.

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