

CURRÍCULUM VITAE

1.PERSONAL DATA

NAME

Luiz Velho

INSTITUCIONAL ADDRESS

IMPA - Instituto de Matemática Pura e Aplicada
Estrada Dona Castorina, 110
Rio de Janeiro, RJ, Brazil, 22460-320
tel.: (5521) 2529-5000

ELECTRONIC ADDRESSES

`lvelho@impa.br`
`http://lvelho.impa.br`

UPDATED ON

29 of November of 2021

2. EDUCATION

2.1. DEGREES

Doctor of Philosophy in Computer Graphics and Vision
Department of Computer Science, University of Toronto,
Toronto, Canada, 1994
Thesis: “*Piecewise Description of Implicit Surfaces and Solids*”
Supervisor: Demetri Terzopoulos

Master of Science in Computer Animation
The Media Laboratory, Massachusetts Institute of Technology
Cambridge, Massachusetts, 1985
Dissertation: “*SCRIPTS: On the Description of Computer Animated Images*”
Supervisor: David Zeltzer

Bacharel em Comunicação Visual e Desenho Industrial
ESDI, Universidade Estadual do Rio de Janeiro
Rio de Janeiro, Brasil, 1979
Project: “*A Imagem no Computador*”

Especialização em Informática
Pontifícia Universidade Católica
Rio de Janeiro, Brasil, 1978
Project: “*Desenho de Formulários por Computador*”

2.2. SCHOLARSHIPS AND GRANTS

Pesquisador Senior, CNPq
Mar 2021 to Feb 2026

Produtividade em Pesquisa, CNPq
Nível 1A, Mar 2015 to Feb 2020
Nível 1B, Mar 2005 to Feb 2015
Nível 1C, Aug 2001 to Feb 2005
Nível 2A, Aug 1999 to Jul 2001
Nível 2B, Aug 1997 to Jul 1999

Cientista do Nosso Estado, Faperj
Oct 2015 to Sept 2019
10/2007 a 09/2009 - 10/2009 a 09/2012 - 10/2012 a 09/2015 - 10/2015 a 09/2018 - 10/2018 a 09/2020

Pesquisador Associado, CNPq
Nível 2C, Aug 1994 to Jul 1997

Doutorado, CNPq
Jan 1991 to Jul 1994

University of Toronto Open Fellowship
Jan to May 1991

Mestrado, CAPES / MEC
Sept 1984 to Jul 1986

Extensão, CAPES / EMBRAFILME
Nov 1981 to Feb 1982

Projetos Especiais, FUNARTE / MEC
Mar 1979 to Dec 1979

Trabalho-Arte, UERJ / MEC / DAC
Mar to Dec of 1978 e 1977

2.3. FOREIGN LANGUAGES

2.3.1. ENGLISH

TOEFEL (Test of English as a Foreign Language), Oct 1982
ALIGU (English Usage Test - American Language Institute, Georgetown University), Apr 1981
Cultura Inglesa, Mar 1968 to Dec 1974

2.3.2. FRENCH

Aliança Francesa, Mar 1970 to Dec 1972

3. PROFESSIONAL EXPERIENCE

3.1. POSITIONS

Instituto de Matemática Pura e Aplicada

Pesquisador Titular e Professor, since August de 2003

Pesquisador Associado, de September de 1997 a July de 2003

Coordenador do Laboratório VISGRAF, since January de 2000

Membro da Comissão de Atividades Científicas, since July de 2008

Membro eleito do Conselho Técnico Científico, de May de 2009 a July de 2015

Membro do Conselho Técnico Científico, de Março de 2002 a July de 2005

Membro da Comissão de Informática, de September de 2001 a August de 2010

Centre National de la Recherche Scientifique, UMI-CNRS-IMPA

Chercheur, since July de 2005.

Universidade Federal do Rio Grande do Norte

Professor Pleno, since November de 2009.

Instituto Superior Técnico, Universidade Técnica de Lisboa

Professor Catedrático, de September de 2009 a November de 2012.

Microsoft Research

Visiting Scientist, de November de 2002 a February de 2003.

Tecgraf, PUC-Rio,

Consultor Científico, de January 2001 a November de 2002.

Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina

Membro da Comissão de Informática, de June de 2000 a June de 2002.

Instituto de Matemática Pura e Aplicada

Pesquisador do projeto VISGRAF

September de 1994 a August de 1997

Hewlett Packard Laboratories, Palo Alto,

Visiting Scientist

November a December 1994

Courant Institute of Mathematical Sciences, New York University, New York

Visiting Professor

July a August 1994

Globo Computer Graphics, Rio de Janeiro

Principal Engineer

October 1986 a September 1990

The Fantastic Animation Machine, New York

Software Engineer.

July 1985 a September 1986

Tele Cine Maruim, Rio de Janeiro,

Software and Animation Designer.

November 1983 a August 1984

TV Globo Network, Rio de Janeiro,

Animation Consultant

Março a August 1984

National Film Board of Canada, Montreal

Visiting Researcher

September 1981 a Março 1982

Morena Filmes - L.C. Barreto - Embrafilme, Rio de Janeiro,

Cameraman and Assistant Cinematographer

January 1980 a April 1982

Serviço Federal de Processamento de Dados, Rio de Janeiro,

Computer Programmer

Março 1978 a December 1980

3.2. COURSES

Neural Networks for Implicit Representations of 3D Scenes
SIBGRAPI, October 2021

Futuro das Mídias Digitais
Cursos de Cinema da ABC, September 2020, March 2021

Chunity Workshop
IMPA, February 2019

Developing Mobile Multimedia Apps, Botanic: A Case Study
SIBGRAPI, September 2014

Kinect and RGBD Images: Challenges and Applications
SIBGRAPI, September 2012
Luiz Velho, Leandro Cruz and Djalma Lucio

Tópicos em Modelagem: Variedades Computacionais e Aplicações
IMPA, Rio de Janeiro, August a December, 2011.
Luiz Velho, Luis Gustavo Nonato, Marcelo Siqueira e Jean Gallier

Sketch-Based Interfaces and Modeling
SIBGRAPI, September 2010
Luiz Velho, Leandro Cruz

Métodos Matemáticos e Computacionais em Musica
XXXII CNMAC, October 2009
Luiz Velho, Paulo Cezar Carvalho, Marcelo Cicconet, Sergio Krakowski

Compressive Sensing
27 Colóquio Brasileiro de Matemática, Rio de Janeiro, July 2007
Luiz Velho, Adriana Schulz, Eduardo Silva

Workshop on Panoramic Images and Narratives
IMPA, Rio de Janeiro, Marco a July 2009

Parametric Pseudo-Manifolds and Applications
IMPA, February 2009
Luiz Velho, Marcelo Siqueira

Multidisciplinary Workshop on Interactive Media and Natural Interfaces
IMPA, Rio de Janeiro, October a December 2008

Fitting Surfaces to Polygonal Meshes using Parametric Pseudo-Manifolds
SIBGRAPI Conference, Campo Grande, October 2008
Luiz Velho, Marcelo Siqueira, Jean Gallier, Dimas Martinez, Luiz Gustavo Nonato, Dianna Xu

Métodos de Reconstrução 3D
IMPA, Rio de Janeiro, August a December 2007
Luiz Velho, Thomas Lewiner

Topics Seminar on NPR
IMPA, Rio de Janeiro, August a December 2007
Luiz Velho, Luiz Henrique Figueiredo

Análise e Síntese Luiz Velho, Coleções de Imagens
IMPA, Rio de Janeiro, Janeiro e February 2006
Luiz Velho, Paulo Cezar Carvalho

Fotografia 3D
25 Colóquio Brasileiro de Matemática, Rio de Janeiro, July 2005
Luiz Velho, Paulo Cezar Carvalho, Asla Sá, Esdras Soares, Anselmo Montenegro, Adailson Peixoto, Luiz Rivera

Introdução ao Processamento de Imagens
IMCA, Peru, December de 2004
Luiz Velho, Marcelo Bernardes Vieira

Tópicos em Modelagem: Superfícies de Subdivisão e Multiresolução
IMPA, Rio de Janeiro, August a December, 2004.

Métodos de Otimização em Computação Gráfica
VI Seminario Internacional en Optimizacion, IMCA, Peru, October 2003
Luiz Velho, Paulo Cezar Carvalho.

Otimização e Aplicações em Computação Gráfica
CATI 2003, Maceio, October 2003.

Mathematical Optimization in Graphics and Vision

SIGGRAPH Conference, San Diego, July 2003

Luiz Velho, Paulo Cezar Carvalho

3D photography: a structured light approach

SIBGRAPI Conference, Fortaleza, October de 2002

Luiz Velho, Paulo Carvalho, Asla M. e Sá, Esdras Soares Filho

Design and Implementation of Three-Dimensional Graphics Systems

IMPA, Rio de Janeiro, Marco a June, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021.

Processamento de Imagens para Computação Gráfica e Visão Computacional

IMPA, Rio de Janeiro, August a December, 2000, 2001, 2002, 2003, 2005, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020.

Tutorial on Mathematical Optimization in Graphics and Vision

SIGGRAPH Conference, San Antonio, July 2002

Luiz Velho, Paulo Cezar Carvalho

Optimization Methods in Graphics

XXII CNMAC - Congresso Nacional de Matematica Aplicada e Computacional, Caxambú, September 2000

Luiz Velho, Paulo Cezar Carvalho e Luiz Henrique Figueiredo

Image Processing and Wavelets

First Latin American Congress of Mathematicians, IMPA, Rio de Janeiro, July 2000

Luiz Velho, Paulo Cezar Carvalho

Numerical Analysis

IMPA, Rio de Janeiro, August a December, 1999

Métodos de Otimização e suas Aplicações em Computação Gráfica

22 Colóquio Brasileiro de Matemática, Rio de Janeiro, July 1999

Luiz Velho, Jonas Gomes, Paulo Cezar Carvalho e Luiz Henrique Figueiredo

Introdução à Teoria de Wavelets

Petrobrás, Rio de Janeiro, May 1998 e June 1999

Luiz Velho, Jonas Gomes

From Fourier Analysis to Wavelets

SIGGRAPH Conference, Orlando, July 1998 e Los Angeles, August 1999

Luiz Velho, Jonas Gomes

Implicit Surfaces: Modeling and Visualization

IMPA, Escola de Computação Gráfica, Rio de Janeiro, February 1998

Multiresolution Structures for Graphical Objects

IMPA, Escola de Computação Gráfica, Rio de Janeiro, Janeiro 1998

Luiz Velho, Jonas Gomes

Wavelets and Applications

SIBGRAPI Conference, October 1997

21 Colóquio Brasileiro de Matemática, Rio de Janeiro, July 1997

Luiz Velho, Jonas Gomes

Applications of Wavelets in Computer Graphics

IMPA, Escola de Computação Gráfica, Rio de Janeiro, Janeiro e February 1996

Luiz Velho, Jonas Gomes e Siome Goldstein

Warping and Morphing in Computer Graphics

SIGGRAPH Conference, Los Angeles, August 1995 e August 1997

Luiz Velho, Jonas Gomes, Lucia Darsa, Bruno Costa e Thad Beier

Transformações de Objetos Gráficos

SIBGRAPI Conference, São Carlos, November 1995

Luiz Velho, Jonas Gomes

Deformação e Metamorfose de Objetos Graficos

20 Colóquio Brasileiro de Matemática, Rio de Janeiro, July 1995

Luiz Velho, Jonas Gomes e Siome Goldstein

Implicit Objects

SIBIGRAPI Conference, Curitiba, November 1994

Computer Graphics

New York University, July e August, 1994

Implicit Objects in Computer Graphics

IMPA, Escola de Computação Gráfica, Janeiro e February 1993

Modeling for Computer Graphics

SIGGRAPH Conference, Anaheim, August 1993

Luiz Velho, Jonas Gomes, Vadim Shapiro e Chris Hoffman

Geometric Modeling

SIBIGRAPH Conference, Aguas de Lindóia, October 1993

Recife, November 1993

Digital Image,

Universidade Estadual Paulista, S. J. Rio Preto, September 1990

Basic Concepts of Image Synthesis

Universidade de São Paulo, São Paulo, VII Escola de Computação, July, 1990

Luiz Velho, Jonas Gomes

The Twixt Animation System,

Globo Computer Graphics, Rio de Janeiro, October e November 1988

Introduction to Computer Graphics

IMPA, Janeiro e February 1988

Luiz Velho, Jonas Gomes

HP 2100 / 21MX Systems Architecture

TECNOCOOP, Rio de Janeiro, Janeiro a March 1981

Assembler HP, LCS Language, DOS HP, STV 1600 Operating System

SERPRO, Rio de Janeiro, August a November 1980

4. SCIENTIFIC PRODUCTION

4.1. BOOKS

1. *GPU Ray Tracing in Non-Euclidean Spaces*,
Morgan ClayPool Lecture Series, 2021.
Tiago Novello, Vinicius da Silva and Luiz Velho.
2. *Intrinsic Visualization in the Thurston's Geometries*.
33rd Brazilian Mathematical Colloquium, 2021.
Tiago Novello, Vinicius da Silva and Luiz Velho.
3. *Proceedings of the Live Coding Music Seminar*.
IMPA, 2019.
Luiz Velho and Vitor Rolla.
4. *OBSERVATOR!O 2016 - Experiências em Deep Learning*
IMPA / VISGRAF Lab, 2016
Luiz Velho, Juliana Giannella.
5. *Um Olhar nos Espaço de Dimensão 3*
IMPA / MAST, 2015
Luiz Velho, Pierre Berger, Pierre-Yves Fave and Juliana Giannella.
6. *From Fourier Analysis to Wavelets*
Springer Verlag, IMPA Monographs Series, 2015
Luiz Velho, Jonas Gomes.
7. *Design and Implementation of 3D Graphics Systems*
Taylor and Francis, 2012
Luiz Velho, Jonas Gomes and Mario Costa Souza.
8. *Computer Graphics: Theory and Practice*
Taylor and Francis, 2011
Luiz Velho, Jonas Gomes and Mario Costa Souza.
9. *Métodos Matemáticos e Computacionais em Musica*
XXXII CNMAC - Congresso Nacional de Matemática Aplicada e Computacional, 2009
Luiz Velho, Marcelo Cicconet, Sergio Krakowski, Paulo César Carvalho.
10. *Compressive Sensing*
27 Colóquio Brasileiro de Matemática, IMPA, 2009
Luiz Velho, Adriana Schulz, Eduardo Silva.
11. *Image Processing for Computer Graphics and Vision*
Springer Verlag, 2008
Luiz Velho, Alejandro Frery and Jonas Gomes.
12. *Mathematical Optimization in Graphics and Vision*
Morgan Kaufmann,, 2008
Luiz Velho, Paulo Carvalho, Luiz Henrique Figueiredo, Jonas Gomes
13. *High Dynamic Range Image Reconstruction*
Morgan and Claypool Publishers, 2008
Luiz Velho, Asla Sa, Paulo Cezar Carvalho
14. *Fotografia 3D*
25 Colóquio Brasileiro de Matemática, IMPA, 2005
Luiz Velho, Paulo César Carvalho, Esdras Soares, Anselmo Montenegro, Asla Sá, Adelailson Peixoto e Luiz Rivera.
15. *Fundamentos da Computação Gráfica*
IMPA, Serie Computação e Matemática, 2004
Luiz Velho, Jonas Gomes.
16. *Métodos de Otimização em Computação Gráfica*
Notas de Curso, IMCA 2003
Luiz Velho, Paulo Cezar Carvalho.
17. *Mathematical Optimization Methods in Graphics and Vision*
Course Notes, SIGGRAPH 2003
Luiz Velho, Paulo Cezar Carvalho
18. *Tutorial on Mathematical Optimization in Graphics and Vision*
SIGGRAPH Tutorial Notes, 2002
Luiz Velho, Paulo Cezar Carvalho

19. *Implicit Objects for Computer Graphics*
Springer Verlag, 2002
Luiz Velho, Jonas Gomes e Luiz Henrique de Figueiredo
20. *Sistemas Gráficos 3D*
IMPA - SBM, 2001
Luiz Velho, Jonas Gomes
21. *Otimização e Aplicações em Computação Gráfica*
XXII CNMAC - Congresso Nacional de Matemática Aplicada e Computacional, 2000
Luiz Velho, Jonas Gomes, Paulo César Carvalho e Luiz Henrique Figueiredo
22. *Image Processing and Wavelets*
First Latin American Congress of Mathematicians, UMACA, 2000
Luiz Velho, Jonas Gomes e Paulo César Carvalho
23. *Introdução aos Espaços de Escala*
Escola de Computação 2000
Luiz Velho, Ralph Teixeira e Jonas Gomes (colaborador)
24. *Métodos de Otimização e suas Aplicações em Computação Gráfica*
22 Colóquio Brasileiro de Matemática, IMPA, 1999
Luiz Velho, Jonas Gomes, Paulo César Carvalho e Luiz Henrique Figueiredo
25. *Computação Gráfica: Volume 1*
IMPA - SBM, 1999
Luiz Velho, Jonas Gomes
26. *From Fourier Analysis to Wavelets*
Siggraph Course Notes, 1998 e 1999
Luiz Velho, Jonas Gomes
27. *Warping and Morphing of Graphical Objects*
Morgan Kaufmann, 1998
Luiz Velho, Jonas Gomes, Bruno Costa, Lúcia Darsa
28. *Wavelets e Aplicações em Computação Gráfica*
21 Colóquio Brasileiro de Matemática, IMPA, 1997
Luiz Velho, Jonas Gomes e Siome Goldstein
29. *Image Processing for Computer Graphics*
Springer Verlag, 1997
Luiz Velho, Jonas Gomes
30. *Warping and Morphing of Graphical Objects*
Siggraph Course Notes, 1995 e 1997
Luiz Velho, Jonas Gomes, Bruno Costa, Lúcia Darsa, George Wolberg e John Berton
31. *Deformação e Metamorfose de Objetos Gráficos*
20 Colóquio Brasileiro de Matemática, IMPA, 1995
Luiz Velho, Jonas Gomes, Bruno Costa e Lúcia Darsa
32. *Computação Gráfica: Imagem*
Coleção Computação e Matemática, SBM / IMPA, 1995
Luiz Velho, Jonas Gomes
33. *Introdução à Computação Gráfica*
Course Notes, IMPA, 1994
Luiz Velho, Jonas Gomes e Paulo Roma Cavalcante
34. *Implicit Objects in Computer Graphics*
Série Monografias em Matemática, IMPA, 1992
Luiz Velho, Jonas Gomes
35. *Conceitos Básicos de Computação Gráfica*
VII Escola de Computação, IME-USP, 1990
Luiz Velho, Jonas Gomes

4.2. BOOK CHAPTERS

1. chapter 33 - *Real-Time Rendering of Complex Fractals*.
in "Ray Tracing Gems II", NVIDIA, 2021.
Tiago Novello, Vinicius da Silva, Helio Lopes and Luiz Velho.
2. chapter *Video and Virtual Reality*.
in "Illustrating Mathematics", American Mathematical Society, 2020.
Tiago Novello, (collaborators) Vinicius da Silva, and Luiz Velho.
3. *Visual Representations for Music Understanding Improvement*,
In Lecture Notes in Computer Science. Springer Verlag, 2018.
Luiz Velho, Leandro Cruz, Vitor Rolla, Juliano Kestenberg
4. *Virtual Emotion to Expression: A Comprehensive Dynamic Emotion Model to Facial Expression Generation Using the MPEG-4 Standard*
in Computer Animation, Jaron S Wright and Lloyd M Hughes (eds.), Nova Science Publishers, November 2009
Luiz Velho, Paula Rodrigues, Asla S 
5. *Togetherness: How Real is that Presence*
in Virtual Worlds, IBS – Kochi, 2008
Luiz Velho, Antonia Lucinelma Pessoa Albuquerque
6. *Projective Texture Atlas and Applications*
in Curves and Surfaces: Avignon 06, T. Lyche,, L. Schumaker, (editors), Nashboro Press, Brentwood, 2007
Luiz Velho, Jonas Sossai
7. *Point Cloud Denoising*
in Geometric Design and Computing - Seattle 03, Mike Neatmu, (editor), SIAM Press, 2004
Luiz Velho, Boris Mederos Madrazo, Luiz Henrique de Figueiredo
8. *Adaptive Mesh Extraction using Simplification and Refinement*
in Curve and Surface Design: Saint-Malo 02, T. Lyche, M.-L. Mazure, L. Schumaker, (eds), Nashboro Press, 2003
Luiz Velho, Adailson Peixoto
9. *A Generic Programming Approach to Multiresolution Spatial Decompositions*,
in Visualization and Mathematics III. pg. 340-362. Springer Verlag, 2002
Luiz Velho, Vinicius Mello, Paulo Roma Cavalcanti, e Claudio Silva
10. *Generalizing the C4 Four-directional Box Spline to Surfaces of Arbitrary Topology*
in Mathematical Methods in CAGD: Oslo, T. Lyche and L. Schumaker ed., 2001
11. *Virtual Sets: Concepts and Trends*
in *Design and Management of Multimedia Information Systems: Opportunities and Challenges*, Idea Group, 2000
Luiz Velho, Lucinelma Pessoa Albuquerque e Jonas Gomes
12. *Computa  o Gr fica: Uma Proposta de Plano Pedag gico*
in *II Curso de Qualidade de Cursos de Gradua  o da  rea de Computa  o e Inform tica*
SBC, p. 291-304, 2000
13. *Graphical Objects*
in *II Pr mio Compaq de Est mulo   Pesquisa e Desenvolvimento em Inform tica*,
Academia Brasileira de Ci ncias e Minist rio de Ci ncia e Tecnologia,, Instituto UNIEMP, S o Paulo, SP, p. 68-83, 1997
Luiz Velho, Jonas Gomes, Bruno Costa e Lucia Darsa
14. *Visualiza  o e Computa  o Gr fica*
in, Diana Domingues (ed.), *Arte no S culo XXI*, Editora UNESP, p. 113-117, 1997
15. *Algorithmic Modeling*
in J. Gomes (org), *Modeling in Computer Graphics*
Siggraph Course Notes, p. 98-134, 1993

4.3. ARTICLES IN SCIENTIFIC JOURNALS

1. *Predicting Dengue Outbreaks in Brazil with Manifold Learning on Climate Data*.
Expert Systems With Applications, 2021.
Caio Souza, Pedro Maia, Lucas Stolerma n, Vitor Rolla and Luiz Velho.
2. *A Simple and Complete Discrete Exterior Calculus on General Polygonal Meshes*.
Computer Aided Geometric Design, 2021.
Lenka Ptackova and Luiz Velho.
3. *Data Visualization in the Time of Coronavirus*.
SDRJ - Strategic Design Research Journal, 2, 2021.
Special Issue on Design contributions for the COVID-19 global emergency.
Julia Giannella and Luiz Velho.

4. *Self-similarity of Classical Music Networks*.
Fractals, 2020.
Vitor Rolla, Pablo Riera, Pedro Souza, Luiz Velho, and Jorge Zubelli.
5. *Global Illumination of Non-Euclidean Spaces*.
Computers and Graphics, SIBGRAPI Special Edition, 2020.
Tiago Novello, Vinicius da Silva, and Luiz Velho.
6. *Visualization of Nil, Sol, and $SL_2(R)$ Geometries*.
Computers and Graphics, 2020.
Tiago Novello, Vinicius da Silva, and Luiz Velho.
7. *Experiments in Situated Participatory Virtual Reality*.
Brazilian Journal of Development, 2020.
Luiz Velho, Djalma Lucio, and Leo Carvalho.
8. *TensorPose: Real-time pose estimation for interactive applications*.
Computers and Graphics, 2019.
Luiz Schirmer, Djalma Lucio, Alberto Raposo, Luiz Velho, and Helio Lopes.
9. *Visualizacao de Colecao de Imagens*.
Dialogo com a Economia Criativa, 2019.
Luiz Velho and Julia Giannella.
10. *VR Tour: Guided Participatory Meta-Narrative for Virtual Reality Exploration*.
Revista GEMInIS, 2019.
Luiz Velho, Julia Giannella, Djalma Lucio, and Vinicius Silva.
11. *The complexity of classical music networks*,
Europhysics Letters, 2018,
Luiz Velho, Vitor Rolla, Juliano Kestenberg.
12. *Hough Transform for Real-Time Plane Detection in Depth Images*,
Pattern Recognition Letters, 2018.
Luiz Velho, Eduardo Vera Sousa, Djalma Lucio, Leandro Fernandes
13. *Local Moebius Transformations Applied to Omnidirectional Images*.
Computers and Graphics, 2017.
Luiz Velho, Leonardo Souto, Leonardo Sacht
14. *Automatic reconstruction of ancient Portuguese tile panels*
IEEE Computer Graphics and Applications, 2016.
Luiz Velho, Fernanda Andalo, Gustavo Carneiro, Gabriel Taubin, Siome Goldenstein
15. *Sketch-Based Modeling and Adaptive Meshes*
Computers and Graphics, 2015.
Luiz Velho, Emilio Brazil, Ronan Amorim, Mario Costa Souza and Luiz Henrique Figueiredo
16. *Real-time Correction of Panoramic Images using Hyperbolic Moebius Transformations*
Journal of Real-Time Image Processing, 2015.
Luiz Velho, Luis Penaranda, and Leonardo Sacht
17. *Facing the High-dimensions: Inverse Projection Luiz Velho, Radial Basis Functions*
Computers and Graphics, 2015.
Luiz Velho, Elisa Portes, Emilio Vital Brazil, Jesus Mena-Chalco, Luis Gustavo Nonato, Faramarz Samavati, Mario Costa Sousa
18. *ChoreoGraphics: An Authoring Tool for Dance Shows*
Journal of Graphics Tools, 2014.
Luiz Velho, Adriana Schulz, Wojciech Matusik
19. *An image-space algorithm for immersive views in 3-manifolds and orbifolds*
Visual Computer, 2014.
Luiz Velho, Pierre Berger, Alex Laier
20. *Adaptive multi-chart and multiresolution mesh representation*
Computers and Graphics, 38:332–340, February 2014.
Luiz Velho, Andre Maximo, and Marcelo Siqueira.
21. *Efficient 3D object recognition using foveated point clouds*
Computers and Graphics, 2013
Luiz Velho, Rafael Gomes, Bruno Silva, Lourena Rocha, Rafael Aroca, and Luiz M. Goncalves.
22. *Virtual Table-Teleporter: Image Processing and Rendering for Horizontal Stereoscopic Display*
International Journal of Virtual Reality, 2013.
Luiz Velho, Bruno Madeira.

23. *Conic-like subdivision curves on surfaces*
The Visual Computer, 2012.
Luiz Velho, Jorge Estrada, Victoria Hernandez, Dimas Martinez, and Nayla Gil.
24. *Interactive 3D Caricature from Harmonic Exaggeration*
Computers and Graphics, 2011.
Luiz Velho, Thomas Lewiner, Adailson Peixoto, Dimas Martinez Morera, Vinicius Mello, and Thales Vieira.
25. *Exoskeleton: Curve Network Abstraction for 3D Shapes*
Computers and Graphics, 2010.
Luiz Velho, Fernando de Goes, Siome Klein, Mathieu Desbrun
26. *Shape and Tone Depiction for Implicit Surfaces*
Computer and Graphics, 2010.
Luiz Velho, Emilio Vital Brazil, Ives Macedo, Mario Costa Sousa, and Luiz Henrique Figueiredo
27. *RGBN sketch-based image warping*
Graphical Models, 2010.
Luiz Velho, Thiago Pereira, Emilio Vital Brazil, Ives Macedo, Mario Costa Sousa, Luiz Henrique de Figueiredo
28. *Simplicial Diffeomorphisms*
Computer Aided Geometric Design, 2010.
Luiz Velho, Vinicius Mello
29. *Hermite Radial Basis Functions Implicit*
Computer Graphics Forum, 2010.
Luiz Velho, Ives Macedo, Joao Paulo Gois
30. *Subdivision de courbes sur les surfaces avec controle de la longueur d'arc*
Revue Electronique Francophone d'Informatique Graphique, v.4, n1, 2010
Luiz Velho, Jorge Estrada-Sarlabous, Victoria Hernandez, Dimas Morera
31. *On 2D Solid Alpha-Complexes of Poisson Disc Samplings*
International Journal of Shape Modeling, 2010.
Luiz Velho, Esdras Medeiros, Helio Lopes, Thomas Lewiner.
32. *Topological Mesh Operators*
Computer Aided Geometric Design, 2010.
Luiz Velho, Esdras Medeiros, Geovan Tavares, Helio Lopes, Thomas Lewiner.
33. *3D Face Computational Photography Using PCA Spaces.*
The Visual Computer, 2009.
Luiz Velho, Jesus Mena-Chalco, Ives Macedo, and Roberto Cesar.
34. *A New Construction of Smooth Surfaces from Triangle Meshes Using Parametric Pseudo-Manifolds.*
Computers and Graphics, 2009.
Luiz Velho, Marcelo Siqueira, Dianna Xu, Jean Gallier, Luis Gustavo Nonato, Dimas Martinez Morera.
35. *Affine Skeletons and Monge-Ampère Equations*
SIAM Journal on Imaging Sciences, 2009.
Luiz Velho, Ralph Teixeira, Moacyr Silva
36. *Learning good views through intelligent galleries*
Computer Graphics Forum, 2009.
Luiz Velho, Thales Vieira, Alex Bordignon, Adailson Peixoto, Geovan Tavares, Helio Lopes, Thomas Lewiner.
37. *Scalable GPU rendering of CSG models*
In Computer and Graphics, 2008
Luiz Velho, Fabiano Romeiro, Luiz Henrique de Figueiredo
38. *Modeling on Triangulations Luiz Velho, Geodesic Curves*
In The Visual Computer, 2008
Luiz Velho, Dimas Martinez Morera, Paulo Cezar Carvalho
39. *A Hierarchical Segmentation of Articulated Bodies*
In Computer Graphics Forum, 2008.
Luiz Velho, Fernando de Goes, Siome Goldenstein
40. *A Cybernetic Observatory Based on Panoramic Vision*
In Technoetic Arts, v. 6, n. 1, March 2008
Luiz Velho, Andre Parente.
41. *A Simple and Flexible Framework to Adapt Dynamic Meshes*
In Computer and Graphics, 2008
Luiz Velho, Fernando de Goes, Siome Goldenstein.

42. *Reconstruction of 3D object meshes from silhouette images*
In Journal of Mathematical Imaging and Vision, 2007
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Luiz Velho, Adriana Schulz
87. *Um Sketch sobre Sketch-Based Modeling*
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88. *The VISGRAF Video Database*
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89. *Switching Interactive Modes*
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90. *Simplicial Diffeomorphisms*
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Luiz Velho, Vinicius Mello
91. *Editing RGBNs*
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92. *collecTable: uma Interface Natural para Coleções de Musica*
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94. *Geodesic Bezier Curves: A Tool for Modeling on Triangulation*
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Luiz Velho, Dimas Martinez, and Paulo Cezar Carvalho
95. *An Aspect Ratio Upper Bound in 2D Solid Alpha Complexes of Poisson Disc Samplings*
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Luiz Velho, Esdras Medeiros, Thomas Lewiner, and Helio Lopes
96. *Reconstructing Poisson Disc Samplings of Solid Objects Luiz Velho, Topological Guarantees*
Technical Report 03-07, IMPA - VISGRAF Laboratory, 2007
Luiz Velho, Esdras Medeiros, Thomas Lewiner, and Helio Lopes
97. *Uma Abordagem Estocástica para Multiresolução de Objetos Sólidos Luiz Velho, Controle Topológico*
Technical Report 01-07, IMPA - VISGRAF Laboratory, 2007
Luiz Velho, Esdras Medeiros, Thomas Lewiner, and Helio Lopes

98. *Intrinsic Mesh Segmentation*
Technical Report TR-07-017, Instituto de Computação UNICAMP, 2007
Luiz Velho, Fernando de Goes, Siome Goldenstein
99. *Local Registration Luiz Velho, Global Reconstruction*
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100. *A Survey of Real-Time Interactive Music Systems*
Technical Report TR-05-06, IMPA - VISGRAF Laboratory, 2006
Luiz Velho, Sergio Krakowski
101. *Improved Partition of Unity Implicit Surface Reconstruction*
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102. *Variational Texture Atlas Construction and Applications*
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Luiz Velho, Jonas Sossai Jr
103. *MUAN: A Stop Motion Animation System*
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104. *An Expressive Talking Head for an Interactive Storytelling System*
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105. *Affine Skeletons and Monge-Ampère Equations*
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106. *Topological Mesh Operators*
Technical Report TR-2005-03, IMPA - Laboratorio VISGRAF, 2005
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107. *Modelos Avançados de Animação Facial - O Estado da Arte*
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Luiz Velho, Paula Salgado Lucena Rodrigues
108. *Sombreamento 3D para Animação 2D*
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Luiz Velho, Hedlena Bezerra, Bruno Feijo
109. *Simulating Film Response Curves from a Pair of LDR Images*
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Luiz Velho, Asla Sá, Paulo Cezar Carvalho
110. *Texture Blending to Point Sampled Geometry*
Technical Report TR-2004-06, IMPA - Laboratorio VISGRAF, 2004
Luiz Velho, Jose Luiz Soares Luz, Paulo Cezar Carvalho
111. *Rastreamento e Modelagem de um Objeto Rígido num Video*
Technical Report TR-2004-03, IMPA - Laboratorio VISGRAF, 2004
Luiz Velho, Anderson Mayrink da Cunha
112. *Visualização de Terrenos em Tempo Real Luiz Velho, Malhas Semi-Regulares*
Technical Report TR-2004-05, IMPA - Laboratorio VISGRAF, 2004
Luiz Velho, Lourena Rocha, Sergio Pinheiro, and Marcelo Vieira
113. *4th Generation Video: Phase One*
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Luiz Velho, Marcelo Vieira, Asla Sa, and Paulo Cezar Carvalho
114. *Dynamic Adaptive Meshes and Stellar Theory*
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115. *Interfaces Assistidas para Deficientes Visuais usando Dispositivos Reativos e Transformadas de Distancia.*
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Luiz Velho, Marcelo Medeiros e Marcelo Gattass
116. *Métodos Probabilísticos para Reconhecimento de Voz.*
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Luiz Velho, Anderson Mayrink da Cunha.
117. *Reconhecimento de Dígitos Luiz Velho, HMM.*
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118. *Moving Least Squares Multiresolution Surface Approximation.*
Technical Report TR-0303, IMPA, 2003.
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119. *Global 2-D Texture Mapping for Implicit Models*
Technical Report 02-09, IMPA - Laboratorio VISGRAF, June 2002.
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120. *Presença em Mundos Virtuais*
Technical Report TR-02-04, IMPA, June 2002.
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121. *Hidden Markov Models*
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Luiz Velho, Anderson Mayrink da Cunha.
122. *A Compression Scheme for Volumetric Data Based on the Local Cosine Transform.*
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Luiz Velho, Anselmo Cardoso de Paiva, e Marcelo Gattass.
123. *Super-Resolution*
Rapport de Stage d'Option Scientifique TR-02-08, Ecole Polytechnique, June 2002.
(Directeur de stage: Luiz Velho) Luiz Velho, Regis Destobbeleire.
124. *Stitching and Visualization of 360 Images*
Technical Report TR-02-03, IMPA, March 2002.
Luiz Velho, Aldo Nogueira.
125. *Caixas Orientadas Envolventes na Verificação de Objetos*
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Luiz Velho, Luis Antonio Rivera, Paulo Cezar Carvalho.
126. *Um Sub-Sistema de Visão Computacional para Acompanhamento de Objetos*
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127. *A Lua Implementation of Image Moment-Based Painterly Rendering*
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133. *Particle Texturing Implicit Surfaces,*
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134. *Espaços de Escala Discretos,*
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135. *Modelagem de Objetos Implícitos: Uma Abordagem Hierárquica,*
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Luiz Velho, Antonio Lopes Apolinario Junior e Claudio Esperança
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138. *Color Halftoning Luiz Velho, Stochastic Screening and Adaptive Clustering*,
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Luiz Velho, Jonas Gomes
139. *Modelagem e Manipulação de Objetos Complexos*
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Luiz Velho, Luiz Antonio Rivera Escriba e Paulo Cezar Pinto Carvalho
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142. *Visualização de Panoramas Virtuais*
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Luiz Velho, Andre Matos e Jonas Gomes
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Luiz Velho, Jonas Gomes
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Luiz Velho, Ken Perlin
145. *Spatial Decompositions*
Technical Report, IMPA, September 1992
Luiz Velho, Paulo Carvalho e Jonas Gomes

4.7. THESIS

Piecewise Description of Implicit Surfaces and Solids,
Ph.D. Thesis, Computer Science Department, University of Toronto, June 1994
supervisor: Demetri Terzopoulos

SCRIPTS: *On the Description of Computer Animated Images*,
M.S. Thesis, The Media Lab., Massachusetts Institute of Technology, June 1986
supervisor: David Zeltzer

4.8. THESIS SUPERVISION

1. Thales Magalhães
NeRF Rendering
Dissertação de Mestrado, IMPA, ongoing
2. Hallison da Paz
AI Graphics
Tese de Doutorado, IMPA, ongoing
3. Caio Souza
Intelligent Agents
Tese de Doutorado, IMPA, ongoing
4. Luiz Schirmer
Pose Detection and Tracking
Tese de Doutorado, PUC-Rio, 2021
5. Andrea Lennhoff
Museums and Media
Tese de Doutorado, PUC-Rio, 2021
6. Julia Giannella
Visualization
Tese de Doutorado, ESDI-UERJ, 2020
7. Bruno Madeira
Métodos de Visão Computacional e Processamento de Imagens para Estereoscopia Horizontal
Tese de Doutorado, IMPA, 2017

8. Lenka Ptackova
A Discrete Wedge Product on Polygonal Pseudomanifolds
Tese de Doutorado, IMPA, 2017
9. Hallison da Paz
Reconstrução Adaptativa De Superfícies Implícitas A Partir De Imagens De Profundidade
Dissertação de Mestrado, IMPA, 2017,
10. Eduardo Vera Sousa
Panoramas em Camadas
Dissertação de Mestrado, UFF, 2016
11. Aldo Zang
Panoramas omnidirecionais expandidos
Tese de Doutorado, IMPA, 2016
12. Hallison da Paz
Panoramas em Camadas
Trabalho de Conclusão, IME, 2014, co-orientador Paulo Rosa
13. Juliano Kestenberg
Fotografia e interação no Jardim Botânico: uma abordagem do design de participação em contexto museológico
Dissertação de Mestrado, ESDI, 2014, co-orientador Washington Lessa.
14. Barbara Pires e Castro
Corpo e Mídia: a experiência artística em um intervalo
Dissertação de Mestrado, UFRJ, 2013, co-orientador Doris Kosminsky.
15. David da Silva Pires
Estimação de movimento a partir de imagens RGBD usando homomorfismo entre grafos
Tese de Doutorado, USP, 2012, co-orientador Roberto Cesar Jr.
16. Dália Bonila
Simulação de Fluidos
Tese de Doutorado, IMPA, 2011
17. Adriana Schulz
ChoreoGraphics: An Authoring Environment for Dance Shows
Dissertação de Mestrado, IMPA, 2011
18. Leandro Cruz
Modelagem de Terrenos
Dissertação de Mestrado, IMPA, 2011
19. Alexandra Camargo Alves
Sistemas de autoria para produção de animações por crianças utilizando Interfaces naturais
Tese de Doutorado, USP, 2011, co-orientadora Roseli Lopes
20. Alexandre Chapiro
Improving Mobile Videos
Dissertação de Mestrado, IMPA, 2011, co-orientador Paulo Cezar Carvalho
21. Ives Macedo Junior
HRBF Implicits
Tese de Doutorado, IMPA, 2011
22. Thales Vieira
Galerias Inteligentes e Otimização de Posicionamento de Câmera
Tese de Doutorado, PUC-Rio, 2010, co-orientador Thomas Lewiner
23. Anderson Mayrink
Learning Head Movements
Tese de Doutorado, IMPA, 2009
24. Sergio Krakowski
Rhythm-Controlled Automata Applied to Musical Improvisation
Tese de Doutorado, IMPA, 2009
25. Aldo Rene Zang
Esquema Híbrido para Amostragem de Mapas de Iluminação em Renderizações Foto-Realista
Dissertação de Mestrado, IMPA, 2009, co-orientador Paulo Cezar Carvalho
26. Esdras Medeiros
Topologia Solida
Tese de Doutorado, IMPA, 2008

27. Adriana Schulz
Compressive Sensing
Trabalho de Conclusão, UFRJ, 2008, co-orientador Eduardo Silva
28. João Velho
Motion Graphics
Dissertação de Mestrado, ESDI, 2008
29. Ives Macedo Junior
Animação e Simulação de Fluidos
Dissertação de Mestrado, IMPA, 2007
30. Paula Salgado Lucena
Animação Facial
Tese de Doutorado, PUC-Rio, 2007, co-orientador Bruno Feijó.
31. Dimas Martinez Morera
Geodésicas em Superfícies Discretas
Tese de Doutorado, IMPA, 2006, co-orientador Paulo Cezar Carvalho
32. Luiz Antonio Rivera
Animação Baseada em Física Luiz Velho, Modelos Geométricos em Multi-Resolução
Tese de Doutorado, PUC-Rio, 2000, co-orientador Paulo Cezar Carvalho
33. Vinícius Melo
Estruturas de Dados Volumétricas
Tese de Doutorado, IMPA 2006
34. Bruno Madeira
Match Move
Dissertação de Mestrado, IMPA 2006, co-orientador Paulo Cezar Carvalho
35. Jonas Sossai Jr.
Atlas Variacionais usando Mapeamentos Projetivos
Dissertação de Mestrado, IMPA 2006
36. Marcus Aurelius Cordenunsi Farias
Operações Booleanas Luiz Velho, Objetos Definidos por Pontos
Dissertação de Mestrado, UFRGS, 2006, co-orientador João Comba
37. Sueni de Souza Arouca
Método implícito para reconstrução de curvas a partir de pontos esparsos
Dissertação de Mestrado, PUC-Rio, 2006, co-orientador Helio Lopes
38. Fabiano Segadaes Romeiro
Hardware-assisted rendering of CSG models
Dissertação de Mestrado, IMPA, 2006, co-orientador Luiz Henrique de Figueiredo
39. Hedlana Bezerra
Colorização 3D para Animação 2D
Dissertação de Mestrado, PUC-Rio, 2005, co-orientador Bruno Feijó
40. Aruquia Peixoto
Simplificação de Superfícies Implícitas Não-Compactas Luiz Velho, Preservação de Topologia
Dissertação de Mestrado, COPPE - UFRJ, 2005, co-orientador Ricardo Farias
41. Moacyr Barbosa da Silva
Eixos Mediais
Tese de Doutorado, IMPA, 2005, co-orientador Ralph Teixeira
42. Lourena Rocha
Interpolação de Movimento Baseada em Momentos
Dissertação de Mestrado, IMPA, 2004, co-orientador Paulo Cezar Carvalho
43. José Luiz Soares Luz
Visualização de Superfícies usando Pontos
Dissertação de Mestrado, IMPA, 2004, co-orientador Paulo Cezar Carvalho
44. Antônio Apolinário
Representação Hierárquica de Funções de Distância
Tese de Doutorado, COPPE - UFRJ 2004, co-orientador Cláudio Esperança
45. Boris Medeiros Madrazo
Visualização de Superfícies Implícitas
Tese de Doutorado, IMPA 2004, co-orientador Luiz Henrique de Figueiredo

46. Heloisa Reis Leal
Operações CSG Luiz Velho, Representações de Pontos
Dissertação de Mestrado, PUC-Rio, 2004, co-orientador Waldemar Celes
47. Sergio Estevão Machado Lisboa Pinheiro
Um sistema de cache preditivo para o processamento em tempo-real de grandes volumes de dados gráficos
Tese de Doutorado, PUC-Rio, 2004, co-orientador Waldemar Celes
48. Aldo Nogueira e Elaine Prata
Modelagem e Visualização Baseada em Imagens
Iniciação Científica, UERJ, 2003
49. Marcelo Medeiros Carneiro
Interfaces Assistidas para Cegos usando Dispositivos Reativos e Transformadas de Distância
Tese de Doutorado, PUC-Rio, 2002, co-orientador Marcelo Gattass
50. Esdras Soares de Medeiros
Fotografia 3D
Dissertação de Mestrado, IMPA, 2002
51. Adailson Peixoto
Extração de Malhas em Multiresolução
Tese de Doutorado, PUC-Rio, 2002, co-orientador Marcelo Gattass
52. Regis Destobbeleire
Super-Resolution
Stage d'Option Scientifique, Ecole Polytechnique, 2002
53. Paula Salgado Lucena
Animação Facial
Dissertação de Mestrado, PUC-Rio, 2002, co-orientador Marcelo Gattass
54. Paul Billault
Texture Synthesis Algorithms
Stage d'Option Scientifique, Ecole Polytechnique, 2001
55. Bruno Madeira
Target Tracking
Trabalho de Conclusão, IME, 2001
56. Anselmo de Paiva
Compressão de Dados Volumétricos Baseada na Transformada do Cosseno Local
Tese de Doutorado, Departamento de Informática, PUC-Rio, 2001, co-orientador Marcelo Gattass
57. Anderson Mayrink
Espaços de Escala e Detecção de Arestas
Dissertação de Mestrado, Visgraf / IMPA, 2000
58. Rodrigo Toledo
Visualização de Terrenos em Multiresolução
Dissertação de Mestrado, Departamento de Informática, PUC-Rio, 2000, co-orientador Marcelo Gattass
59. Kenneth B. Russell,
IMPS: Implicit Surfaces for Interactive Animated Character
MS Thesis Reader, MIT-Media Lab, May de 1999
60. Andre de Machado Matos
Panoramas Virtuais
Dissertação de Mestrado, Departamento de Informática, PUC-Rio, 1998, co-orientador Marcelo Gattass
61. Fernando Wagner da Silva
Um Sistema de Animação Luiz Velho, Movimento Capturado
Dissertação de Mestrado, Departamento de Informática, UFRJ, 1998.

4.9. POST-DOC SUPERVISION

Gulherme Schardong, 2020 -
 Santiago Guisasola, 2019 -
 Tiago Novello, 2019 -
 Lenka Ptackova, 2017-2018
 Aldo Zang, 2016.
 Vitor Rolla, 2015-2017.

Leandro Cruz, 2015-2016.
 Fernanda Andaló, 2013-2014.
 Luiz Penaranda, 2012-2014.
 Erwan Reanlt, 2010-2012.
 André Maximo, 2010-2012
 Noslen Hernandez, 2012.
 Marcelo Cicconet, 2011.
 Anderson Mayrink, 2009-2010.

4.10. SCIENTIFIC DIVULGATION

1. *A Matemática da Animação por Computador*,
 in *Ciencia Hoje*, SBPC, 2013
 Luiz Velho, Luiz Henrique Figueiredo e Diego Nehab
2. “Matemática e o Desenvolvimento de Software”
 2004, Luiz Velho, Jonas Gomes e César Camacho
3. “Visorama: Arte e Matemática”
 Ciclo Arte, Ciência e Tecnologia
 ITAU Cultural, 2003
4. “Sobre o IMPA ”
 in *IMPA 50 anos*, 2003
5. “Computação Gráfica e Estilos Visuais” (November, 2000)
 Revista Eletrônica Idéias, Escola de Artes Visuais
 Luiz Velho, Jonas Gomes
6. “Descrição do Movimento na Era da Informatização”
 in *Nota-Anna*, Analivia Cordeiro, Editora Fapesp, 1997
7. “Vislumbrando o Futuro das Comunicações: a Internet” (November, 1995)
 Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
8. “Novas Tecnologias de Vídeo” (December, 1994)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
9. “Composição de imagens” (May, 1994)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
10. “Vídeo Digital” (March, 1993)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
11. “Padrões de Cor” (December, 1992)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
12. “Fundamentos de Cor” (September 1992)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
13. “Imagem Digital” (June, 1992)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
14. “Computação Gráfica” (March, 1992)
Computação Gráfica, Journal of the Society of Television Engineers
 Luiz Velho, Jonas Gomes
15. *Computação Gráfica*,
 in *Ciencia Hoje*, Vol. 10, No. 56, pages 36-47, SBPC, August 1989
 Luiz Velho, Jonas Gomes

5. PARTICIPATION IN SCIENTIFIC EVENTS

5.1. INVITED TALKS

2021

- "Novas Mídias e o Metaverso"
Multivisões Imersivas - Universidade PETROBRAS, December 2021.
- "Next Media for Expanded Reality"
VFXRio, December 2021.
- "XR em Experimentações Científicas e Mercado"
X-Reality USP, March 2021.
- "As Tendências da Edição para Novas Mídias"
LATC Program for A/V Professionals , February 2021.

2020

- "Digital Humans"
VISGRAF Seminar, July 2020.
- "Mediated eXperiences"
VFXRio Online, June 2020.
- "The Circle of Innovation"
Workshop on Industrial Mathematics, IMPA-CeMEAI, February 2020.

2019

- "Pose Detection with Machine Learning"
Rio Info AI Conference , September 2019.
- "O Boneco."
Besides the Screen , September 2019.
- "Expanded Virtual Puppeteering."
VISGRAF Seminar, August 2019.
- "Live Cinema"
Semana ABC, May 2019.
- "Real Time Ray-Tracing"
Rio2C, May 2019.
- "Digital Empathy, Robot Style"
ESDI - Microsoft Design Expo Program , May 2019.
- "Gaze-Based Interaction in Cinematic 360 VR"
Forum Audiovisual do Mercosul, oct 2019.
- "Jos Stam: from Art to Science."
VISGRAF Seminar Talk, March 2019.
- "A Matemática dos Filmes de Animação 3D."
Impa Portas Abertas, oct 2019

2018

- "The New Museum"
I Panorama em Tecnologias Digitais para Museus, FGV 2018.
- "The Tempest"
IMAGINA[trans]forma[inter]ação 2018.
- "Future Media"
Rio Creative Conference 2018.
- "New Media: Challenges and Perspectives"
Seminar at OITO, 2018.

2017

- "Early Years"
Closing Talk at Luiz Velho 60 years celebration, 2017.

“Lance J. Williams - The man and his legacy”
IMPA, 2017

“Yves Meyer ~ Wavelets”
Seminario Premio Abel, IMPA, 2017

“Multi-Player In-Situ VR”
IMPA, 2017

“OBSERVATORIO”
Campus Party, 2017

2016

“Image Analysis and Synthesis: New Contexts”
Seminar on 'Photography and Urban Memory' , IMS., September 2016.

“Visualização de dados”
3 Seminario Big Data Brasil, MP-RJ

2015

“Panoramic Views into the Future”
VFX 2015, December 2015

“research@visgraflab: Trends in Mobile Computing”
ABC/CNRS – Workshop de Bio-Engenharia, October 2015

“Development of Mobile Applications for New Media”
IMPA, Janeiro 2015

2014

“Moebius Transformations and Ominidirectional Images”
VII Semana de Matematica da UFF, October 2014

“3D Shape Reconstruction and Applications”
Workshop on 3D Technologies, September 2014

2013

“Dynamically Adapted Stellar Meshes”
Symposium on Computational Geometry, ACM, June 2013

2012

“HPC for Vison and Graphics”
Workshop em Computação de Alto Desempenho, ABC, December 2012

“Ominidirectional Images and Video”
IME, November 2012

“Computação Visual e suas Aplicações”
IMPA, October 2012

“Full dome, ... and beyond”
II Workshop de Produção Fulldome, September 2012

2011

“New Media at VISGRAF Lab”
TV Globo, I9, November 2011

“Authoring Tools for Digital Photograpy”
Seminario Dispositivo Fotografia e Contemporaneidade, September 2011

“Computação Grafica”
IMPA, June 2011

2010

“The ZZ Buffer”
60 Anos de Jorge Stolfi, November 2010

“Image Based Graphics”
WVC, July 2010

“Town Hall Meeting on Interactive Media, Digital Magazines and Design”
IMPA, June 2010

“VISGRAF at 21”
IMPA, February 2010

2009

“The Curricula of my Dreams”
Workshop sobre Ensino da Computação Gráfica, October 2009

2008

“Musica e Dança Interativa”
Ciência e Artes - FIOCRUZ, September 2008

“Novas Mídias”
Ciclo de Debates - ESDI, September 2008

“Coreografismos”
Third Latin American SCAT Workshop, March 2008

“VISGRAF Lab: Past, Present, Future”
IMPA, January 2008

2007

“Topologia Sólida”
ISMM, October 2007

“Relações entre Topologia e Geometria”
SIBGRAPI, October 2007

“Computational Illumination”
PUC-Rio 2007

“Novos Tópicos de Pesquisa em Computação Gráfica”
IV Semana de Eletrônica e Computação, UFRJ 2007

“Fotografia 3D”
Workshop on Graphics, Departamento de Matemática, UFC, February 2007

2006

“Coleções de Imagens e Aplicações”
XXIX CNMAC, September 2006

“O Estado da Arte em Computação Visual”
58 Reunião Anual da SBCP, July 2006

“Novas Mídias”
Grandes Desafios da Computação, SBC, May 2006

“A Matemática da Computação Visual”
Escola de Verão, Departamento de Matemática, UFES, February 2006

2005

“Computação Visual e Matemática”
Palestra Inaugural, I Simpósio de Iniciação Científica, IME-USP, October 2005

“Modeling Luiz Velho, Simplicial Diffeomorphisms”
Keynote Speech, Third Eurographics Symposium on Geometry Processing, July 2005

“Research Topics in Graphics”
UFMG, June 2005

“TV Digital e Computação Visual”
IETV, Simpósio sobre TV Digital, June 2005

“The Mathematics of Visual Computing”
PUC-Rio, Colóquio do Departamento de Matemática, April 2005.

“Computer Graphics: The Next Frontier”
UNISINOS, March 2005.

“Reconstructing the Partenon”
IMPA – VISGRAF CG Seminar February 2005.

2004

“Research Trends in Graphics and Vision”
IMCA, Peru, December 2004

“The Future of Digital Video”
IETV, III Encontro Internacional de Televisão, December 2004

“Mathematical Tools for Visual Computing”
COPEA, November 2004.

“Computer Animation”
PUC-Rio, October 2004.

“A Panoramic View on Visorama”
III Simpósio de Cibercultura, October 2004.

“Real-Time Digitalization of Real Humans”
VII Symposium on Virtual Reality, October 2004.

“Vídeo Digital”
TVE, May 2004.

“Texture Synthesis on Surfaces”,
PUC-Rio, Janeiro 2004

2003

“Interstícios entre Abstrato e Concreto”,
Itaú Cultural, Ciclo Arte, Ciencia e Tecnologia, October 2003

“Intrinsic and Extrinsic Multiresolution”,
Schloss Dagstuhl, July 2003

“Image Processing Satellite Images”,
CRESDA, Beijing, Janeiro 2003

2002

“Procedural and Multiscale Models in Graphics”,
XV SIBGRAPI, October 2002

“Modelos Matemáticos para Imagem Digital e Cor”,
ESDI-UERJ, October 2002

“Multiresolução e Teoria Estelar”,
IME-USP, September 2002

“Binary Multi-Triangulation: Issues and Developments”,
Schloss Dagstuhl, February 2002

2001

“Computação Gráfica em Projetos de Patrimônio Cultural”,
Congresso Brasileiro de Arqueologia, September, 2001

“4-8 Subdivision”,
IBM T.J. Watson Research Center, Janeiro 2001

2000

“Visualização de Panoramas em Multiresolução”,
Escola de Comunicação ECO - UFRJ, October 2000

“Ensino da Computação Gráfica no Brasil”,
Mesa Redonda no XIII SIBGRAPI, October 2000

“Computação Gráfica: Uma proposta de Plano Pedagógico”,
II Curso de Qualidade de Cursos de Graduação da Área de Computação, June 2000

“4-8 Subdivision”,
Minisymposium on Applications of Subdivision, Curves and Surfaces Conference, June 2000

“4-8 Meshes and Subdivision Surfaces”,
Workshop On Subdivision In Geometric Modeling And Computer Graphics,
Schloss Dagstuhl, March 2000

1999

“Hierarchical 4-K Mesh Structures”,
Princeton University, November 1999

“Quasi Stationary 4-8 Refinement and Subdivision Surfaces”,
New York University, November 1999

“Data Capture Technologies for Film and Video”,
III Seminário de Cinema e Televisão do Mercosul,
Painel Novas Tecnologias do Audiovisual, June 1999

“The Visorama System”,
II Mostra Petrobrás de Realidade Virtual, June 1999

1998

“Wavelet Tools for Digital Painting”,
SIBGRAPI 98, Painel Métodos Multi-Escala, October 1998

“Variable Resolution Modeling”,
XXI CMAC, Caxambu, Minisimpósio de Modelagem Geométrica, September 1998

“Visual Representations”,
ESDI-UERJ, Rio de Janeiro, June 1998

“Multiresolution Meshes”,
IME-USP, São Paulo, May 1997

1997

“Hierarchical Sequential Triangulations”,
Intel Research, Palo Alto, November 1997

“Triangle Meshes and Triangle Strips”,
University of California, Berkeley, November 1997

1996

“Image Based Rendering”,
ECO / UFRJ

1995

“Fundamental Approaches for 3D Visualization”,
Colóquio Arte no Século XXI, São Paulo

"Meio Tom Digital Luiz Velho, Curvas Fractais"
20 Colóquio Brasileiro de Matemática, IMPA, Rio de Janeiro

"Metamorfose em Computação Gráfica"
Centro Universitário da Tijuca, Rio de Janeiro

1994

"New Video Technologies"
Semana de TV - ECO/UFRJ, Rio de Janeiro

"Virtual Reality and Special Effects"
Mostra Realidade Virtual - Centro Cultural Cândido Mendes, Rio de Janeiro

1992

"Animation Luiz Velho, Implicit Objects"
MIT-Media Laboratory, Boston

1991

"3D Modeling"
IV Brazilian Symposium on Computer Graphics, São Paulo

1990

"Procedural Models in Animation"
EPUSP/IEEE Symposium in Visual Computing, São Paulo,

1989

"Computer Graphics and Standards"
Universidade de Campinas, Campinas,

"Software Development in Computer Graphics"
I National Seminar of Computer Graphics, Porto Alegre

"Computer Animation Systems"
Instituto Tecnológico da Aeronáutica, São José dos Campos

1988

"Trends and Directions in Computer Graphics"
Pontifícia Universidade Católica Rio de Janeiro

"Animation by Computer"
II Meeting of Brazilian Film Animators, São Paulo
"Computer Graphics"
Escola Superior de Propaganda e Marketing, Rio de Janeiro

1987

"Graphical User Interfaces"
II National Congress of Office Automation, São Paulo
"Special Effects and Computer Graphics"
Seminar on Elements of Video Technology, EMBRAFILME, Rio de Janeiro
"Computer Imagery, Shape and Motion"
XX National Computer Congress, SUCEU 87, São Paulo
"Computer Art"
Universidade Santa Ursula, Rio de Janeiro
"Computer Graphics and Design"
Escola Superior de Desenho Industrial, UERJ, Rio de Janeiro

5.2. CONFERENCE COMMITTEES

2019

VFX Rio (Member of the Program Committee)
EXPRESSIVE 2019 (Member of the Program Committee)

2018

RGB-D 2018 (Member of the Program Committee)
EXPRESSIVE 2018 (Member of the Program Committee)
Workshop on Novel Interaction Techniques for Collaboration in VR ACM CHI 2018 (Organizer)
International Conference on Geometric Modeling and Processing - GMP'18 (Member of the Program Committee)
13th International Joint Conference on Computer Vision, Imaging and Computer Graphics (Program Committee Member)

2017

EXPRESSIVE 2017 (Member of the Program Committee)
Eurographics STAR Program (IPC Member)
GMP 17 (Member of the Program Committee)
GRAAP 17 (Member of the Program Committee)

2016

3rd Workshop on Computer VISION for ART Analysis (Member of the Program Committee)
Shape Modeling 16 (Member of the Program Committee)
GMP 16 (Member of the Program Committee)
GRAAP 16 (Member of the Program Committee)

2015

XXI Congreso Argentino de Ciencias de la Computación (Member of the Program Committee)
SGP 15 (Member of the Program Committee)
GMP 15 (Member of the Program Committee)
GRAAP 15 (Member of the Program Committee)

2014

XII Workshop de Computacion Grafica, Imagenes y Visualizacion (Member of the Program Committee)
Workshop on Computer Vision for Art Analysis (Member of the Program Committee)
SGP 14 (Member of the Program Committee)
GMP 14 (Member of the Program Committee)
GRAAP 14 (Member of the Program Committee)

2013

GMP 13 (Member of the Program Committee)
SGP 13 (Member of the Program Committee)
SPM 13 (Member of the Program Committee)
GRAAP 13 (Member of the Program Committee)

2012

CASA 12 (Member of the Program Committee)
GMP 10 (Member of the Program Committee)
SGP 12 (Member of the Program Committee)
3DPVT 12 (Member of the Program Committee)
SPM 12 (Member of the Program Committee)
SMI 12 (Member of the Program Committee)
GRAAP 12 (Member of the Program Committee)

2011

SIBGRAPI 11 (Member of the Advisory Board)
CASA 11 (Member of the Program Committee)
GMP 11 (Member of the Program Committee)
SGP 11 (Member of the Program Committee)
3DPVT 11 (Member of the Program Committee)
SMI 11 (Member of the Program Committee)
GRAAP 11 (Member of the Program Committee)

2010

SIBGRAPI 10 (Member of the Advisory Board)
CASA 10 (Member of the Program Committee)
CACIC 10 (Member of the Program Committee)
GMP 10 (Member of the Program Committee)
SGP 10 (Member of the Program Committee)
3DPVT 10 (Member of the Program Committee)
SPM 10 (Member of the Program Committee)
SMI 10 (Member of the Program Committee)
GRAAP 10 (Member of the Program Committee)

2009

SIBGRAPI 09 (Member of the Program Committee)
WEPG 09 (Member of the Program Committee)
CASA 09 (Member of the Program Committee)
SGP 09 (Member of the Program Committee)
GPM 09 (Member of the Program Committee)
Mathematics of Surfaces 09 (Member of the Program Committee)
SMI 09 (Member of the Program Committee)
GRAAP 09 (Member of the Program Committee)

2008

SIBGRAPI 08 (Member of the Program Committee)
SIGGRAPH 08 (Member of the Grand Jury)
CASA 08 (Member of the Program Committee)

PBG 08 (Member of the Program Committee)
SEMISH 08 (Member of the Program Committee)
SGP 08 (Member of the Program Committee)
3DPVT 08 (Member of the Program Committee)
SBIM 08 (Member of the Program Committee)
SPM 08 (Member of the Program Committee)
Eurographics 08 (Member of the Program Committee)
SMI 08 (Member of the Program Committee)
GRAAP 08 (Member of the Program Committee)

2007

Workshop on Computer Vision Applications for Developing Regions 2007 (Organizer)
ICCV 2007 (Local Organizer)
Mathematics of Surfaces 2007 (Member of the Program Committee)
PBG 07 (Member of the Program Committee)
SIGGRAPH 07 (Member of the Program Committee)
SCA 07 (Member of the Program Committee)
SGP 07 (Member of the Program Committee)
PROCAMS 07 (Member of the Program Committee)
SMI 07 (Member of the Program Committee)
CGI 07 (Member of the Program Committee)
ISAMA 07 (Member of the Program Committee)
GRAAP 07 (Member of the Program Committee)

2006

Grandes Desafios da Computação (Invited Speaker)
SBGAMES 06 (Member of the Program Committee)
SIBGRAPI 2006 (Member of the Program Committee)
Eurographics 2006 (Member of the Posters Committee)
SIGGRAPH 2006 (Paper Reviewer, Course Reviewer)
SCA 06 (Member of the Program Committee)
VIIP 06 (Member of the Program Committee)
PBG 06 (Member of the Program Committee)
PROCAMS 06 (Member of the Program Committee)
3DPVT 06 (Member of the Program Committee)
SMI 06 (Member of the Program Committee)
SPM 06 (Member of the Program Committee)
Workshop Image Based Graphics (Organizer)
International Conference on Computer Graphics Theory and Applications (Member of the Program Committee)
WSCG 06 (Member of the Program Committee)

2005

SBGAMES 2005 (Member of the Program Committee)
Workshop de TV Digital 2005 (Invited Speaker)
SIBGRAPI 2005 (Posters Chair)
SIGGRAPH 2005 (Paper Reviewer)

ACM Symposium on Computer Animation 2005 (Program Committee Member)
 Coloquio Brasileiro de Matemática (Co-organizer of the Special Session on Computer Graphics and Vision)
 Microsoft Research Faculty Summit 2005 (Invited Researcher)
 Latin America Microsoft Research Academic Summit 2005 (Invited Researcher)
 XVIII Concurso de Teses e Dissertações SBC, 2005 (Jury Member)
 Third Eurographics Symposium on Geometry Processing (Program Committee Member)
 Procams 2005 (Member of the Program Committee)
 Computer Graphics International (Member of the Program Committee)
 Point Based Graphics (Member of the Program Committee)
 Tenth ACM Symposium on Solid and Physical Modeling (Member of the Program Committee)
 International Conference on Shape Modeling (Member of the Program Committee)
 WSCG 2005 (Member of the Program Committee)

2004

VMV 2004 (presenting a paper)
 WJogos 2004 (Member of the Program Committee)
 VII Symposium on Virtual Reality (Invited Speaker)
 III Simposio Cibercultura (Invited Speaker)
 SIBGRAPI / SIACG 2004 (Member of the Program Committee)
 Eurographics 2004 (Member of the Short Papers Program Committee)
 SIGGRAPH 2004 (Course and Papers Reviewer)
 Second Eurographics Symposium on Geometry Processing (Member of the Program Committee)
 ACM Symposium on Solid Modeling and Applications (Member of the Program Committee)
 International Conference on Shape Modeling (Member of the Program Committee)
 Symposium on Point-Based Graphics (Member of the Program Committee)
 Second Symposium on 3D Data Processing, Visualization and Transmission (Member of the Program Committee)

2003

SIBGRAPI 2003 (Member of the Program Committee, 3 papers, video)
 SGP 2003 (Member of the Program Committee)
 Shape Modeling and Applications 2003 (Member of the Program Committee)
 SIGGRAPH 2003 (Member of the Program Committee)
 Agents 2003 (Member of the Program Committee)
 ACM Solid Modeling 2003 (Member of the Program Committee)
 Dagstuhl Seminar (Invited Speaker)

2002

Computer Animation 2002, November 2002 (Member of the Program Committee)
 SIBGRAPI 2002 (Keynote Speaker, Presented 3 Papers and Teaching a Course)
 SIGGRAPH 2002, August 2002 (Papers Committee Member and Teaching a Course)
 IMPA - 50 Anos, July 2002 (Organizer Special Session on Computer Graphics and Vision)
 First Ibero-American Symposium in Computer Graphics, 2002 (Co-Chair of the Program Committee and Presented a Paper)
 VisMath 2002, May 2002 (Member of the Program Committee and Presented a Paper)
 Shape Modelling and Applications 2002, May 2002 (Member of the Program Committee)

2001

Computer Animation 2001, November 2001 (Member of the Program Committee)

Visualiztion 2001, October 2001 (Paper Reviewer)
 SIBGRAPI 2001 (Paper Reviewer, Presented 2 Papers and a Poster)
 Congresso Brasileiro de Arqueologia, September 2001 (Participation in a Working Group on Computer Applications)
 ACM SIGGRAPH 2001 Computer Graphics Conference, Los Angeles, August 2001 (Paper reviewer)
 Colóquio Brasileiro de Matemática, July 2001 (Organizer of Special Session in Computer Graphics)
 23 Colóquio Brasileiro de Matemática, July 2001 (Organizer of Special Section on Computer Graphics)
 Graphics Interface 2001, June 2001 (Paper reviewer)
 Shape Modeling International, May 2001 (Presented a paper)

2000

Visual 2000, September 2000 (Member of the Program Committee)
 XIII Brazilian Symposium on Computer Graphics and Image Processing, October 2000 (Panel Member)
 XXII CNMAC - Congresso Nacional de Matematica Aplicada e Computacional, September 2000 (Presented a Course)
 ACM Siggraph 2000 Computer Graphics Conference, New Orleans, August 2000 (Papers Committee Member)
 Escola de Computação, IME/USP, July 2000 (Presented a Course)
 First Latin American Congress of Mathematicians, IMPA, July 2000 (Presented a Course)
 Mathematical Methods for Curves and Surfaces, (Presented a Paper)
 SBC2000 - XX Congresso da Sociedade Brasileira de Computacao , (Presented a Course)
 IEEE Visualization 2000 (Paper Reviewer)
 Computer Animation 2000, May 2000 (Member of the Program Committee)
 Workshop on Subdivision in Geometric Modeling and Computer Graphics ,March 2000 (Presented a Paper)

1999

Fourth Workshop on Modeling Luiz Velho,Implicit Surfaces, Eurographics, October 1999 (Member of the Program Committee)
 XII Brazilian Symposium on Computer Graphics and Image Processing, October 1999 (presented 2 Papers and Poster)
 Eurographics Multimedia 99 Workshop, September 1999 (Presented a Paper)
 ACM Siggraph 99 Computer Graphics Conference, August 1999 (Papers Committee Member, Presented a Course)
 22 Colóquio Brasileiro de Matemática, July 1999 (Organizer of Special Session in Computer Graphics, Presented a Course)
 IEEE Visualization 99 (Paper Reviewer)
 UIST 99 (Paper Reviewer)

1998

SIBGRAPI 98, October1998 (Invited Speaker in a Panel, presented 3 Papers, a Course and 2 Videos)
 ACM Siggraph 98 Computer Graphics Conference, , July 1998 (Paper Reviewer, Presented a Technical Sketch and a Course)
 Third Workshop on Modeling Luiz Velho,Implicit Surfaces, Eurographics, July 1998 (Member of the Program Committee)
 IEEE Visualization 98 (Paper Reviewer)
 XXI CNMAC, Minisimpósio de Modelagem Geométrica (Invited Speaker)
 First Workshop on Image-Based Modeling and Rendering, Stanford, Janeiro 1998 (Presented a Poster)

1997

5th SIAM Conference on Geometric Modeling, New Orleans, November 1997 (Presented a Paper)
 ACM Multimedia 97, Seattle, November 1997
 SIBGRAPI 97, October1997 (Member of the Program Committee, presented 2 Papers, a Poster and 4 Videos)
 Eurographics 97, Budapest, September 1997
 Eurographics Workshop on Computer Animation and Simulation, Budapest, September 1997 (Presented a paper)
 ACM Siggraph 97 Computer Graphics Conferences, August 1997 (Paper Reviewer, Presented a Technical Sketch)
 CG International 97, June 1997 (Member of the Program Committee, presented a Paper)

21 Colóquio Brasileiro de Matemática (Presented a Course)

IEEE Visualization 97 (Paper Reviewer)

SBC Multimídia 97 (Paper Reviewer)

1996

SIBGRAPI 96, October 1996 (President of the Program Committee, Presented 2 papers and a Poster)

ACM Siggraph 96 Computer Graphics Conference, New Orleans, August 1996 (Paper Reviewer)

Eurographics 96 (Paper Reviewer)

Volume Visualization 96 (Paper Reviewer)

Second Workshop on Modeling Luiz Velho, Implicit Surfaces, Eurographics, 1996 (Member of the Program Committee)

7th Eurographics Workshop on Rendering, June 1996 (Member of the Program Committee)

Graphics Interface'96, May 1996 (Paper Reviewer)

1995

4th SIAM Conference on Geometric Modeling, New Orleans, November 1995 (Presented a Paper)

SIBGRAPI 95, October 1995 (Member of the Video and Program Committee, Presented a Paper and a Tutorial Course)

ACM Siggraph 95 Computer Graphics Conference, (Paper Reviewer, Presented a Tutorial Course and two Papers)

20 Colóquio de Matemática (Presented a Course)

Computer Animation 95, April 1995

First Workshop on Modeling Luiz Velho, Implicit Surfaces, Eurographics, April 1995 (Member of the Program Committee)

1994

The Future of Mathematics Communications, Berkeley, December 1994

SIBGRAPI 94, Curitiba 1994 (Video Contributor, Presented a Paper and a Tutorial Course)

ACM Siggraph 94 Computer Graphics Conference, Orlando, August 1994 (Paper Reviewer, Presented a Technical Sketch)

Graphics Interface'94, May 1994 (Paper Reviewer)

1993

3rd SIAM Conference on Geometric Modeling, Tempe, November 1993 (Presented a Paper)

ACM Siggraph 93, Computer Graphics Conference, Anaheim, August 1993, (Paper Reviewer, Presented a Tutorial Course)

SIBGRAPI 93, Recife 1993 (Paper Reviewer, Presented a Paper and Tutorial Course, Organizer of Computer Art Show)

1992

SIBGRAPI 92, Linoia, November 1992 (Paper Reviewer, Presented a Paper and Tutorial Course, Organizer of Video Show)

Workshop on NetNews, IMPA- Rio de Janeiro, August 1992

Graphics Interface'92 and Workshop on Local Illumination, Vancouver, May 1992 (Presented a Paper)

1992 Symposium on Interactive 3D Graphics, Boston, March 1992

1991

2nd SIAM Conference on Geometric Modeling, Tempe, November 1991 (Presented a Paper)

RIDT'91 - Raster Imaging and Digital Typography, Boston, October 1991

SIBGRAPI 91, São Paulo, July 1991 (Paper Reviewer, Presented a Paper)

ACM Siggraph 91 Computer Graphics Conference - Las Vegas, August 1991 (Presented a Paper)

IMPA Summer Workshop on Geometric Modeling, Rio de Janeiro, Janeiro 1991

1990

EPUSP/IEEE Symposium in Visual Computing, São Paulo, November 1990 (Invited Speaker)

Eurographics '90, Computer Graphics Conference, Montreux, September 1990 (Presented a Paper)

ACM Siggraph 90, Computer Graphics Conference, Dallas, August 1990

VII School of Computing, São Paulo, July.1990 (Presented a Tutorial Course)

III Brazilian Symposium on Computer Graphics and Image Processing, Gramado, May 1990 (Presented a Paper)

IMPA Workshop in Mathematical Aspects of Vision and Image Processing, R.J., Janeiro 1990

1989

IV Abusi Annual Congress (Brazilian Intergraph Association), São Paulo, September 1989 (Invited Speaker)

ACM Siggraph 89, Computer Graphics Conference - Boston, August 1989

II Brazilian Symposium on Computer Graphics and Image Processing, Lindoia, April 1989 (Presented a Paper)

1988

III Abusi Annual Congress (Brazilian Intergraph Association) Rio de Janeiro September 1988 (Invited Speaker)

ACM Siggraph 88, Computer Graphics Conference - Atlanta, August 1988

Ausgraph 88, Computer Graphics Conference, Melbourne, July 1988 (Presented a Paper)

I Brazilian Symposium on Computer Graphics and Image Processing, Petropolis, April 1988.

1987

II Abusi Annual Congress, Rio de Janeiro, September 1987 (Presented a Paper)

ACM Siggraph 87, Computer Graphics Conference - Anaheim, August 1987

1986

ACM Siggraph 86, Computer Graphics Conference - Dallas, August 1986

1985

ACM Siggraph/Sigact, Symposium on Computational Geometry, Baltimore, June 1985

ACM Siggraph 85, Computer Graphics Conference - San Francisco, July 1985

Before 1985

ACM Siggraph 84, Computer Graphics Conference - Minneapolis, July 1984

I Symposium on Computer Graphics, SUCESU, São Paulo, November 1978

Seminar of Design and Teaching, SESU-MEC and FAU-USP, São Paulo, September 1978

V Integrated Seminar of Software and Hardware, NCE-UFRJ, Rio de Janeiro, July 1978

5.3. CONFERENCE ORGANIZATION

Live Coding Experience 2018

Organizer

Computational Manifolds 2011 - Trimester Program on Computational Manifolds and Applications

Organizer

ICCV 2007

Local Organizer

Workshop on Computer Vision Applications for Developing Countries, 2007

Co-Organizer

CGI 2007

General Chair.

Workshop on Image-Based Graphics 2006

Organizer

SIBGRAPI 2005

Posters Chair

25 Coloquio Brasileiro de Matemática, 2005

Co-organizer of the Special Session on Computer Graphics and Vision

Workshop of Geometry Processing and Applications 2004

Organizer

Workshop on Computer Vision 2004

Organizer

24º Colóquio Brasileiro de Matemática

Organizer of the special session on Computer Graphics

CEGRAPI - Workshop of Thesis and Dissertation 2002

Member of the Examination Committee

IMPA – 50 Anos
 Organizer of the special session on Computer Graphics and Vision
 First Ibero-American Symposium in Computer Graphics
 Co-Chair of the Program Committee
 23° Colóquio Brasileiro de Matemática
 Organizer of the special session on Computer Graphics
 RIOARTE 2001
 Membro do Juri de Bolsas para Arte e Tecnologia
 22° Colóquio Brasileiro de Matemática
 Organizer of the special session on Computer Graphics
 V Brazilian Symposium on Computer Graphics and Image Processing, 1992
 Chair of the Video Committee

5.4. EXAMINATION COMMITTEES

PhD thesis defense of Luiz Schirmer, (PUC-Rio), Feb 2021
 PhD thesis defense of Sonia Gonzales, (PUC-Rio), Feb 2021
 PhD thesis defense of Pablo Telles, (PUC-Rio), Sept 2020
 MS thesis defense of Thiago Baldivieso, (IME), August 2020
 PhD thesis defense of Ezequiel Soto, (IMPA), August 2020
 MS thesis defense of Bernardo Alevato, (PUC-Rio), June 2002
 MS thesis defense of Carlos Leal, (UFSC), February 2020
 MS thesis defense of Fabio Luiz, (IME), January 2020
 PhD thesis defense of Ricardo Maroquio, (IME), April 2020
 PhD thesis defense of Julia Giannella, (ESDI-UERJ), February 2020
 MS thesis defense of Daneil Yukimura, (IMPA), March 2018
 MS thesis defense of Aline Becher, (UFSC), February 2018
 PhD thesis defense of Andrea Lins, (COPPE-URFJ), September 2017
 PhD thesis defense of Guilherme Otranto, (IME-USP), September 2017
 PhD thesis defense of Bruno Madeira, (IMPA), August 2017
 MSc dissertation defense of Hallison da Paz, (IMPA), April 2017
 MSc Dissertation defense of Fernando Mazzini, (IMPA), February 2017
 PhD thesis defense of Lenka Ptackova, (IMPA), January 2017
 MSc thesis defense on "Detecção e descrição de características visuais", Raphael Evangelista, (UFF) , Apr 2016
 PhD thesis defense on "Expanded Panoramas ", Aldo Zang, (IMPA) , Apr 2016
 PhD thesis defense on "Fully-parallel pipeline for h-q rendering of vector graphics ", Francisco Ganacim, (IMPA) , Apr 2015
 PhD thesis defense on " High-Level Techniques for Landscape Creation", Leandro Cruz, (IMPA) , Mar 2015
 PhD thesis defense on "TetraQuad Geometric Representation", Allyson Cabral, (IMPA) , Mar 2015
 PhD thesis defense on "Optimized Quasi-Interpolators for Image Reconstruction", Leonardo Koller, (IMPA) , Dez 2014
 Ms dissertation defense on "Fotografia e interação no Jardim Botânico", Juliano Kestenberg (ESDI), Aug 2014
 PhD thesis defense on "Foliating Marching Cube's Cases In Dimension Three And Four ", Jyrko Correa, (IMPA) , Dez 2013
 Ms dissertation defense on "Corpo e Media ", Barbara Castro (UFRJ), Aug 2013
 Ms dissertation defense on "Choreographics" , Adriana Schulz (IMPA), Jan 2012
 Ms dissertation defense on "Improving Mobile Video", Alexandre Chapiro (IMPA), Aug 2011
 Ms dissertation defense on "Visualização por Imagens Auto-animadas de Campos Vetoriais", Renata Lins (PUC), March 2011
 Ms dissertation defense on "Terrain Modeling", Leandro Cruz (IMPA), March 2011
 Ms dissertation defense on "GPU Rendering of Implicit Surfaces", Francisco Ganacim (IMPA), Feb 2011

PhD thesis defense on "Sketch Based Modeling", Emilio Brazil, (IMPA) , Feb 2011

PhD thesis defense on "HRBF Implicits", Ives Macedo, (IMPA), Jan 2011

Ms dissertation defense on " Content-Preserving Projections for Panoramas", Leonardo Koller Sacht (IMPA)), April 2010

Ms dissertation defense on "Geração de Animação Facial em Avatares", Rossana Queiroz (PUC-RS), March 2010

Ms dissertation defense on "NormalShop: Modeling Surface Mesostructure", Thiago Pereira (IMPA), March 2010

Ms dissertation defense on "Point-Based Rendering", Felipe Moura (COPPE/UFRJ)), February 2010

Ms dissertation defense on "A Hybrid Method for Computing Apparent Ridges", Eric Jardim (IMPA), February 2010

PhD thesis defense on " Galerias Inteligentes e Otimizalcao de Posicionamento de Camera", Thales Vieira, (PUC) January 2010

PhD thesis defense on "Simulation of flows Luiz Velho,floating particles", Marcos Lage (PUC-Rio), December 2009

Ms. Thesis defense, "Redução de Ruído em Imagens", Andre Targino Costa (COPPE/UFRJ), August 2009

Ms. Thesis defense, "Using Line Integral Convolution to Render Effects on Images", Ricardo Castaneda (IMPA), February 2009

Member of Thesis Committee Ms thesis defense on " Esquema Híbrido para Amostragem de Mapas de Iluminação em Renderizações Foto-Realista", Aldo Rene Zang, IMPA, July 2009

PhD thesis defense on " Visualização Interativa de Modelos Baseados em Pontos", Ricardo Marroquim, UFRJ, September 2008

MS thesis defense on "Motion Graphics", João Velho, ESDI, July 2008

Ms thesis defense on "Efeitos de Fratura para Visualização Não-Realista", Anna Regina Corbo, IMPA, April 2008

PhD thesis defense on "A Equação de Poisson e a Decomposição de Helmholtz-Hodge", Fabiano Petronetto, PUC-Rio, 2008

PhD thesis defense on "Um sistema de geração de expressões faciais", Paula Lucena, PUC-Rio, December 2007

Ms. thesis defense on "Simulation of Fluids for Computer Graphics", Ives Jose Macedo Junior, IMPA, November 2007

PhD thesis defense on "Visualization of Massive Data on GPU", Rodrigo Toledo, LORIA, October 2007

Ms. thesis defense on "Processing Connected Components", David da Silva, IME-USP, August 2007

Ms. thesis defense on "Least Squares Meshes", Catiúscia Borges, PUC-Rio, March 2007

Ms. thesis defense on "Reconstrução de Regiões a partir de Amostras Luiz Velho, Ruído", Emilio Vital Brazil, IMPA, March 2007

PhD thesis defense on "Optic Flow", Perfilinio Ferreira, IMPA, February 2007

Ms. thesis defense on "Automatic Surface Registration", Thales Vieira, UFAL, February 2007

Ms. thesis defense on "Calibration Methods and Applications", Clarissa Codá, UFAL, February 2007

Prêmio Zeferino Vaz, UNICAMP, November 2006

Ms. thesis defense on "Automatic Surface Registration", Bruno Madeira, IMPA, December 2006

PhD thesis defense on "Novos Métodos Simpliciais em Computação Gráfica", Vinicius Mello, IMPA, April 2006

Ms. thesis defense on "High Dynamic Range Imaging", Rodrigo Martins, PUC-Rio, April 2006

PhD thesis defense on "Controlling Illumination to Boost Information on Image Collections", Asla Sa, IMPA, March 2006

Ms. thesis defense on "Estruturas de partição do Espaço", Marcus Aurelius Farias , UFRGS, March 2006

Ms. thesis defense on "Propagação de Pontos usando Transformada Unscented", Leyza Dorini, UNICAMP, February 2006

Ms. thesis defense on "Scalable Topological Data Structures", Marcos Lage Ferreira, PUC-Rio, February 2006

Ms. thesis defense on "Implicit Curve Reconstruction from Points", Sueni Arouca, PUC-Rio, February 2006

Ms. thesis defense on "Hardware-assisted rendering of CSG models", Fabiano Segadaes Romeiro, IMPA, February 2006

Ms. thesis defense on "Calculo Projetivo de Caixas", Leandro Fernandes, UFRGS, Janeiro 2006

Concurso Prof. Titular - IME/USP, May 2005

PhD thesis defense, Thomas Lewiner, PUC-Rio, July 2005

Ms. thesis defense on "Dynamic BSP-trees", Rodrigo Luque, UFRGS, July 2005

Ms. thesis defense on "Efeitos de Mosaico para Imagens" Geisa Martins Faustino, IMPA, June 2005

MS thesis defense on "3D Shading Effects for Cartoon Animation", Hedlena Bezerra, PUC-Rio, June 2005

PhD thesis defense on "Inverse Rendering", Jose Pinheiro, UFMG, June 2005

Ms. thesis defense on "Reconstrução a partir de nuvem de pontos por funções de Morse discretas", Helton, USP , May 2005

Ms. thesis defense on "Triangulações Adaptativas em Multiresolução", Ricardo Marroquim , COPPE-UFRJ, April 2005

Ms. thesis defense on "Texture Synthesis", Leandro Tonietto, UNISINOS, March 2005

Ms. thesis defense on "Simplificação de Superfícies Implícitas Não-Compactas Luiz Velho, Preservação de Topologia", Aruquia Peixoto, UFRJ, February 2005

Ms. thesis defense on "Simplificação de Moléculas", Cynthia Oliveira Ferreira , PUC-Rio, February 2005

D.Sc. thesis defense on "Affine Skeletons", Moacyr Alvim Barbosa , IMPA, Janeiro. 2005

Master thesis defense on "Inpainting", Afonso Paiva Neto, IMPA, November. 2004

Master thesis defense on "Visualização de Superfícies usando Pontos", Jose Luiz Soares Luz, IMPA. October 2004

Master thesis defense on "Interpolação de Movimento baseada em Momentos ", Lourena Rocha, IMPA. October 2004

D.Sc. thesis defense on " Surface Reconstruction from Noisy Point Clouds", Boris Mederos Madrazo, IMPA, September 2004

Master thesis defense on " Operações Booleanas na Modelagem por Pontos", Heloisa Reis Leal, PUC-Rio. August 2004

D.Sc. thesis defense on " Modelagem e Visualização a Mao Livre usando Superfícies Implícitas Variacionais", Álvaro Parari, COPPE/UFRJ, June 2004

D.Sc. thesis defense on "Pertinência em Dimensão Arbitraria Luiz Velho, Multiresolução", Luciano Silva, IME –USP, May 2004

MS. defense on "Segmentação Interativa", Romaric Audigier, UNICAMP. February 2004

D.Sc. thesis defense on "Sistema de cache preditivo para processamento em tempo-real de dados gráficos", Sergio Pinheiro, PUC-Rio February 2004

Ms defense on " Uma Abordagem Topológica para Simplificação de Malhas", Antonio Vieira, PUC-Rio, October 2003

D.Sc. thesis defense on "Reconstrução de Cenas 3D", Anselmo Montenegro, PUC-Rio, September 2003

Professorship exam of Roberto Marcondes, IME-USP, July 2003

Master thesis defense on "Triangulação de Superfícies", Esdras Soares Filho, IMPA, February 2003

D.Sc. thesis defense on "Interfaces Assistidas para Cegos", Marcelo Medeiros, PUC-Rio, November 2002

D.Sc. thesis defense on "Extração de Malhas Multiresolução", Adailson Peixoto , PUC-Rio, October 2002

Master thesis defense on "Constructing Discrete Morse Functions", Thomas Lewiner, PUC-Rio, July 2002

Public Exam for Adjunct Researcher of LNCC, June 2002

Master thesis defense on "Expressive Talking Heads", Paula Salgado Lucena, PUC-Rio, June 2002

D.Sc. thesis defense on "Propagação de Informações Locais de Dados Esparsos para Reconstrução de Superfícies", Marcelo Bernardes Vieira , UFMG, April 2002

Master thesis defense on " Algoritmo Multi-resolução para Visualização da Simulação Numérica de Reservatórios Naturais de Petróleo", Antonio Carlos Pereira de Azambuja, PUC-Rio, April 2002

Master thesis defense on "Alinhamento por Maximização de Informação Mutua", Juliano Camargo, IMPA, March 2002

D.Sc. thesis defense on "Acompanhamento de Cenas Luiz Velho, Calibração Automática de Camera", Flavio Szenberg , PUC-Rio, December 2001

CAPES, Avaliação do Programa de Doutorado em Matemática Computacional da UFPE, October 2001

Master thesis defense on "Alinhamento de Cameras Virtuais" , Pablo Alfredo Baier, IMPA, September 2001.

Professorship exam of Antonio Elias Fabris, IME-USP, August 2001.

Master thesis defense on "Morfologia Matemática, Segmentação e Equações de Evolução" , Marcilene Dianin, PUC-Rio, August 2001

D.Sc. thesis defense on "Volume Compression using the Lapped Cosine Transform", Anselmo Cardoso de Paiva , PUC-Rio, April 2001

Master thesis defense on “Espaços de Escala e Detecção de Arestas”, Anderson Mayrink, IMPA, October de 2000

Master thesis defense on “Segmentação de Sequenciais de Imagens por Morfologia Matemática”, Franklin Cesar Flores, IME-USP, October 2000

D.Sc. thesis defense on “Animação Baseada em Física e Modelos em Multiresolução”, Luiz Antonio Rivera Escriba, PUC-Rio, September 2000

Master thesis defense on “QuadLOD: Uma Estrutura para a Visualização Terrenos”, Rodrigo Toledo, PUCRio, April 2000

Master thesis defense on “Computing Discrete Minimal Surfaces”, João Paulo Bento, UFRJ, March 2000

Master thesis defense on “Multiple Display Architecture for Virtual Environments over Heterogeneous Networks”, Alexandre G. Ferreira, PUC-Rio, December de 1999

D.Sc. thesis defense on “Curvature Operators in Vision and Image Processing”, Cicero Motta, IMPA, November de 1999

Master thesis defense on “IMPS: Implicit Surfaces for Interactive Animated Character”, Kenneth B. Russell, MIT-Media Lab, May de 1999

Master thesis defense on "Caracterizando Refinamentos e Simplificações em Malhas por Operadores Morfológicos", Mário da Silva Guimarães Neto, IMPA, April de 1999

Master thesis defense on "Cenários Virtuais Luiz Velho, um Estudo de Sincronismo de Câmera", Lucinelma Albuquerque, PUC-Rio, April de 1999

Master thesis defense on "Representação Multiescala de Objetos Implícitos", Vinicius Mello, Universidade Federal da Bahia, April de 1999

D.Sc. thesis defense on "Visualização Volumétrica de Campos Escalares Definidos em Triangulações Regulares", Jose Maria Ribeiro Neves, COPPE-UFRJ, Janeiro de 1999

D.Sc. thesis defense on “Processamento Geometrico de Dados Volumétricos”, Romildo José da Silva, IMPA, August de 1998

Master thesis defense on “Visualização de Panoramas Virtuais”, Andre Matos, PUC-Rio, July de 1998

Master thesis defense on “Geometry of Polyhedra”, Gustavo Bevilacqua, IMPA, August de 1998

Master thesis defense on “Quantização de Imagens”, Marcos Rayol, PUC-Rio, May de 1998

Master thesis defense on “A Motion Captured Animation System”, Fernando Wagner da Silva, UFRJ, March de 1998

Master thesis defense on “Compressão de Imagens”, Marcelo Ferraz, IMPA, September de 1997

PhD thesis defense on “Animação Baseada em Agentes”, Monica Costa, PUC-Rio, April 1997

Master thesis defense on “Metamorfose de Sons”, Siome Goldstein Klein, PUC-Rio, August de 1997

Master thesis defense on “Homeomorfismos e Metamorfose de Modelos Poliedrais em Tetraedracoes”, Marcelo Kallman, COPPE, UFRJ, June 1996

Master thesis defense on “Modelagem de um Sistema de Pintura Digital”, Maria Celia Paiva de Freitas, COPPE, UFRJ, Março 1995

Faculty Position in Computer Graphics Escola de Comunicação, ECO-UFRJ, November 1994

6. OTHER ACTIVITIES

6.1. CONSULTING

European Research Council Executive Agency, 2011

Dannemann Siemens, 2009

Israel Science Foundation

NSERC, Canada

Olympya, 2004

DRV, 2004

TVE – RJ, 2004

ACM SIGGRAPH, 2001

Tecgraf, PUC-Rio, 2001-2002

Fotorama, 2001

Espaço Telemar, 2000

CONICET

RIOARTE, 2001

CNPq

CAPES

FAPESP

FAPERJ

Programa SOFTEX 2000

IBC – International Biography Center, Cambridge, UK, 1998

6.2. EDITORIAL ACTIVITIES

Computer Graphics Forum, Editorial Board Member, from 2012 to 2013

IEEE Computing Now, Member of the Advisory Board, from 2011 to 2012

IEEE Computer Graphics and Applications, Member of the Editorial Board, from 2010 to 2013

Graphical Models, Member of the Editorial Board, from 2010 to 2012

Computer & Graphics, Member of the Editorial Board, from 2007 to 2012

SIBGRAPI 2005 Posters Proceedings, Editor, 2005

Computer and Graphics – Special Issue SIACG, Guest Editor, 2002

Anais do SIACG, Editor, Eurographics, 2002

CD-ROM do Visorama, Editor, 1999

CD-ROM do SIBGRAPI'97, Editor, SBC, 1997

Journal of SBC - Special Issue in Computer Graphics and Image Processing, Guest Editor, SBC, 1997

Anais do SIBGRAPI'96 e CD-ROM do SIBGRAPI'96, Editor, SBC, 1996

Waldemar Cordeiro: Arte por Computador, Editor, SBC, 1993

Série Computação e Matemática - IMPA / SBM, Member of the Editorial Board

Revista Estudos em Design – AEND, Member of the Editorial Board, from 1993 to 1999

Revista de Informatica Teorica e Aplicada, SBC, Reviewer

Computer Aided Geometric Design, Reviewer

Morgan-Kaufmann Publishers, Reviewer

IEEE Transactions on Visualization and Computer Graphics, Reviewer

Computer Graphics Forum – Eurographics, Reviewer

Transactions on Graphics – ACM, Reviewer

The Visual Computer - Springer Verlag, Reviewer

6.3. SCIENTIFIC SOCIETIES MEMBERSHIP

SBM - Sociedade Brasileira de Matemática

SBC – Sociedade Brasileira de Computação

ACM - SIGGRAPH - Association for Computing Machinery

7. PROJECTS AND PRODUCTION

7.1. EQUIPMENT / SOFTWARE GRANTS AND DONATIONS

1. Jetson Nano (NVIDIA)
2. Titan (NVIDIA)
3. Geforce (NVIDIA)
4. Tablets (NVIDIA)
5. Software (Microsoft)
6. Creative Suite (Adobe)
7. Maya (Autodesk)
8. Phone (Nokia)
9. Liquid Galaxy (Endpoint)
10. Computers (IBM)

7.2. PROJECTS

1. PROCAD-Defesa, 2020-2022
2. PCI, MCTI, 2019-2023
3. BRICS, CNPq, 2018-2020
4. Atualização de Equipamentos, FAPERJ, 2016
5. Pos-Doc, CNPq, 2015
6. Exposição Espaços de Dimensão 3, FAPERJ, 2013
7. Projeto Universal, CNPq, 2012
8. Sistemas de Autoria, CNPq, 2011
9. Pesquisador Visitante, CNPq 2011
10. Instituto Nacional de C&T de Matematica, CNPq, 2011
11. Pos-Doutorado, CAPES / Faperj, 2011
12. Realidade Aumentada MoveI, CNPq, 2010
13. Pos-Doutorado Junior, CNPq 2010
14. Projeto Infradata - Domo, FINEP, 2009
15. Instituto Nacional de C&T de Matematica, CNPq, 2009
16. Projeto de Equipamentos de Grande Porte – IMPA, FAPERJ, 2008
17. Projeto Tematico – UNICAMP, FAPESP, 2008
18. Projeto Universal – UNICAMP, CNPq, 2008
19. Infraestrutura de Pesquisa, FAPERJ, 2007
20. Pos-doc CNPq, Andei Sharf, 2007
21. 25th CGI , FAPERJ, 2007
22. Cooperação Internacional Luiz Velho, University of California, Santa Barbara, CNPq / NSF, 2006
23. University of Calgary, 2006
24. Cooperação UFAL, Fapeal, 2006
25. Mitsubish Research Labs, Projection Software License, 2005
26. Rio Inovação 2, Visoram, Faperj, 2005
27. Cooperação Internacional Luiz Velho, INRIA – PUC-Rio. CNPq/França, 2005
28. Projeto VIRTUS. CT-Info, 2005
29. Maya Software Research. Alias, 2005

30. Software Development Donation. Microsoft Research, 2005
31. Programa RHAE-Inovação, DRV, 2005
32. Renderware Software Development Program. EletronicArts - Criterium, 2005
33. Instituto do Milênio II – Avanço Global da Matemática Brasileira - *Coordenador Computação Gráfica*, MCT , 2005
34. Cooperação Bilateral / Utah – UFRGS. CNPq/NSF, 2005
35. Fomento Tecnológico. CNPq, 2005
36. Vídeo de Quarta Geração, fase 2. CT-Info - FINEP, 2005
37. Pro-Infra. FINEP, 2005
38. Edital UNIVERSAL. CNPq, 2005
39. MUAN. IBM / Anima Mundi, 2005
40. Projeto Giga. RNP – FINEP, 2004
41. Caixa Mágica. IBM / Anima Mundi, 2003
42. Video Digital de Quarta Geração. CT-Info, FINEP, 2002
43. Terra Lib. CT-Info, CNPq, 2002
44. Video Digital em Matemática. CT-Infra 3, FINEP, 2002
45. Training Program in “*Traitment Numérique de l’Image*”. Ecole Polytechnique, 2002
46. CT-Petro (PUC-Rio / IMPA / Petrobrás). MCT – CNPq, 2001
47. Visita do Prof. Jan Flusser. Academia Brasileira de Ciências, 2001
48. Instituto do Milênio – Avanço Global da Matemática Brasileira, *Coordenador Setorial Computação Gráfica*, MCT, 2001
49. Projeto Integrado. CNPq, 2001
50. Edital Universal. CNPq, 2001
51. ACIS 3D Geometric Modeler. SPATIAL Corp, 2001
52. Training Program in “*Traitment Numérique de l’Image*”. Ecole Polytechnique, 2001
53. Projeto Maya Software. Alias/Wavefront 2000
54. Projeto Cooperação Internacional Luiz Velho, MRL-NYU. CNPq / NSF, 1998
55. Projeto Rede Metropolitana ATM. RNP – PROTEM, 1998
56. Projeto Visorama,. FAPERJ, FINEP e FUJB 1997-1998
57. Projeto Integrado,. CNPq, 1998
58. Visita do Prof. Leonidas Guibas,. FAPERJ, 1997
59. Laboratório de Video e Multimídia,. FINEP, 1996
60. PROTEM. MCT, 1995
61. Projeto VISGRAF. FAPERJ, 1994
62. Projeto Simulador de Periscópio. Marinha Brasileira, 1990

7.3. MOBILE APPS

1. *Revelar*, IMPA 2016
2. *Olhar3D*, IMPA 2015
3. *RPic / CPic / QPic*, IMPA 2014
4. *Expo*, IMPA 2014
5. *Botanic*, IMPA 2013
6. *sfcDiter*, IMPA 2012
7. *S3D Mobile*, IMPA 2013

7.4. SYSTEMS

1. Dengue, IMPA / Code Ocean, 2021
2. DNI, IMPA 2021
3. HNI, IMPA 2021
4. RayVR, IMPA 2020
5. Expanded Puppeteering, IMPA 2019
6. Interactive 360 Cinematic VR, IMPA 2018
7. VR Tour, IMPA 2018
8. VR Kino+Theater, IMPA 2018
9. Web Orchestra, IMPA 2017
10. *RGB-D \pi*, IMPA 2015
11. *Mesa-3D*, IMPA 2015
12. *Pano Layers*, IMPA 2013
13. *Planovision*, IMPA 2013
14. *MUAN **, IMPA 2012
15. *Panorama Viewer*, IMPA 2011
16. *Virtual Teleporter*, IMPA 2011
17. *Choreographics*, IMPA 2011
18. *Panosuite*, IMPA-Digitok 2010
19. *Normal Editing*, IMPA 2009
20. *Symmetry Completion*, IMPA 2008
21. *Photometric Stereo*, IMPA 2008
22. *X-Motion*, IMPA 2008
23. *Remote Light*, IMPA 2007
24. *Motion Control* . IMPA, 2006
25. *3D Shading Cartoon Animation* . IMPA - PUC, 2005
26. *Multiresolution Mosaics* . IMPA, 2005
27. *Texture Maps* . IMPA, 2005
28. *V4D* . IMPA, 2004
29. *MUAN* . IMPA, 2004
30. *Morpheus*. UERJ, 2003
31. *3DP* . IMPA, 2003
32. *Dynamic Meshes* . IMPA, 2003
33. *Mesh Ops*. IMPA, 2003
34. *Extração de Malhas em Multiresolução*. IMPA, 2002
35. *Multiscale Paint*. IMPA, 2002
36. *Super-Resolution*. IMPA, 2002
37. *3D Meshes*. IMPA, 2002
38. *Virtual Memory for 2D Objects*. IMPA, 2002
39. *Target Tracking*. IMPA - IME, 2001
40. *SG-3D*. IMPA, 2001
41. *Texture Synthesis*. IMPA, 2001
42. *Procedural Features for Subdivision Surfaces*. MRL-NYU, 2001
43. *4-8 Subdivision Surfaces*. Visgraf Lab, IMPA, 2000

44. *Hierarchical 4-K Meshes*. Visgraf Lab, IMPA, 1999
45. *System for Video Segmentation*. Visgraf Lab, IMPA, 1998
46. *Motion Processing System*. Visgraf Lab, IMPA, 1997
47. *Visorama Virtual Reality System*. Visgraf Lab, IMPA, 1996
48. *System for Modeling Luiz Velho, Implicit Objects*. Visgraf Lab, IMPA, 1995
49. *Half-toning Software*. Visgraf Lab, IMPA, 1993
50. *Periscope Simulator for the Brazilian Navy*. Globograph / SFB, 1990
51. *System for Image Processing and Special Effects*. Globograph, 1988
52. *Photorealistic 3D Rendering System*. Fantastic Animation Machine, 1986
53. *Parametric Surfaces Modeling System*. Fantastic Animation Machine, 1986
54. *SCRIPTS: 3D Animation System*. Fantastic Animation Machine, 1986
55. *2D Animation System*. Tele Cine Maruim, 1984
56. *Printed Circuit Drawing System*. SERPRO, 1980

7.5.VÍDEOS

1. *A Matemática da Animação 3D*, Ciclo de Palestras IMPA, 2021
2. *V-Horus*, SIGGRAPH Asia VR Theater, 2020
3. *Children Do Not Play War*, SIGGRAPH VR Theater, 2019
4. *VR Kino+Theater*, IEEE VR Conference Videos, 2019
5. *VR Tour*, 2018
6. *The Tempest*, 2018
7. *Indisciplinas*, 2016
8. *Mesa3D – Reconstruindo IMPA*, 2015
9. *Revelar*, 2015
10. *Dance Performance*, 2015
11. *Expo*, 2014
12. *Botanic*, 2013
13. *Choreographics*, SIBGRAPI Video Show 2011
14. *M4G*, SIBGRAPI Video Show 2011
15. *Terrain Visualization*, SIBGRAPI Video Show 2011
16. *CG Chorus Line*, SIBGRAPI Video Show 2010
17. *Motion Scoring*, SIBGRAPI Video Show 2010
18. *Tuio Sketch*, SIBGRAPI Video Show 2010
19. *Dance to the Music / Play to the Motion*, ACM SIGMAD 2010
20. *Virtual and Augmented Reality at IMPA*, IEEE VR Conference 2010
21. *Match Move*, SIBGRAPI Video Show 2009
22. *The Blues Machine*, SIBGRAPI Video Show 2009
23. *Collectable*, SIBGRAPI Video Show 2009
24. *Gramofone*, Festival HTTPVIDEO, Instituto Sergio Motta 2008
25. *Unsquare Dance*, SIBGRAPI Video Show 2008
26. *Expressive Trajectories*, SIBGRAPI Video Show 2008
27. *O Gramophone da Folia*, SIBGRAPI Video Show 2008
28. *O Gramophone Digital*. SIBGRAPI Video Show 2007
29. *Relativistic Visualization*. SIBGRAPI Video Show 2007

30. *Iterative 3D Reconstruction*. SIBGRAPI Video Show 2007
31. *Adaptive Tessellation of Deformable Models*. SIBGRAPI Video Show 2007
32. *Clay Girls*. CGI 2007
33. *Aguas de Março*. VISGRAF 2007
34. *Pandeiro +*. VSIGRAF 2006
35. *Modeling Luiz Velho, Bezier Curves*. SIBGRAPI Video Show 2006
36. *Interactive Rendering of CSG Objects*. SIBGRAPI Video Show 2006
37. *Dynamic Adapted Meshes*. SIBGRAPI Video Show 2006
38. *Visualização de Som*. SIBGRAPI Video Show 2006
39. *3D Shading for Cartoon Animation*. SIBGRAPI Video Show 2005
40. *3D Video*. SIBGRAPI Video Show 2004
41. *Space Carving*. SIBGRAPI Video Show 2004
42. *Realistic Real-Time Ocean Rendering*. SIBGRAPI, Video Show 2004 - Microsoft Research, 2003
43. *Progressively Variant Textures*. XVI SIBGRAPI, Video Show - Microsoft Research, 2003
44. *Synthesis on Surfaces*. XIV SIBGRAPI, Video Show - NYU, 2001
45. *Motion Cyclification*. XIII SIBGRAPI, Video Show, 2000
46. *4-8 Subdivision Surfaces*. XIII SIBGRAPI, Video Show, 2000
47. *4-K Meshes*. International Congress on Differential Geometry in memory of Alfred Gray, 2000
48. *Video Cut*. SIBGRAPI'99 Video Show, 1999
49. *2D Textures: an Implicit Drama*. SIBGRAPI'98 Video Show, 1998
50. *Visorama: A System for Visualization of Panoramas*. SIBGRAPI'98 Video Show, 1998
51. *Visualization of Image Quantization*. Computational Geometry 1998
52. *Quantização de Imagens*. SIBGRAPI'97 Video Show, 1997
53. *Animação por Movimento Capturado*. SIBGRAPI'97 Video Show, 1997
54. *Textura Luiz Velho, Sistemas de Partículas*. SIBGRAPI'97 Video Show, 1997
55. *Project Memory Head*. SIBGRAPI'97 Video Show, 1997
56. *Blobby Bubbles*. SIBGRAPI'97 Video Show, 1997
57. *Wavelet Paint*. SIBGRAPI'94 Video Show, 1994
58. *Globograph Demo Reel*. SIBGRAPI'91 Video Show, 1991
59. *Fantastic Animation Sample Reel*. ACM Siggraph'87 Film and Video Show, 1987
60. *Happy Birthday ENIAC*. Computer Museum, Boston, 1986
61. *Brazil Paula Z (opening)*. Video Festival, Rio de Janeiro, 1984
62. *Graphics*. National Film Board of Canada, 1982
63. *A Imagem no Computador (1979)*. SIBGRAPI'92 Video Show, 1992

7.6. IMAGES

1. *David*, Cover dos Anais do NPAR, 2010
2. *HRBF*, Back-Cover dos Anais do SIBGRAPI, 2009
3. *Illumination*,. Back-Cover dos Anais do WTD, 2008
4. *Hierarchical Mesh Segmentation*,. Backcover of SGP Proceedings, 2008
5. *Latin America*,. Back-Cover dos Anais do XVIII SIBGRAPI, 2005
6. *Disk Fan Enhanced*,. Cover of Book Geometric Modeling and Computing, 2004
7. *Gulf of Mexico*,. Back-Cover dos Anais do XVII SIBGRAPI, 2004
8. *Face*,. Cover of Journal of Graphics Tools, 2004

9. *Bunny*,. Back-Cover dos Anais do XVI SIBGRAPI, 2003
10. *Stones*,. Back-Cover dos Anais do XVI SIBGRAPI, 2003
11. *Pepper Bunny*,. Backcover Proceedings of SIGGRAPH 2003
12. *Parrot*,. Cover dos Anais do XV SIBGRAPI, 2002
13. *Trainy*,. Back-Cover dos Anais do XV SIBGRAPI, 2002
14. *Canoe*,. Back-Cover dos Anais do XV SIBGRAPI, 2002
15. *Butterfly*,. Back-Cover dos Anais do XV SIBGRAPI, 2002
16. *Planets*,. Back-Cover dos Anais do XIV SIBGRAPI, 2001
17. *Transition*,. Back-Cover dos Anais do XIV SIBGRAPI, 2001
18. *Skull*,. Back-Cover dos Anais do XIV SIBGRAPI, 2001
19. *Special Effects Luiz Velho, Haltoning*,. Ilustração para o livro “Non-Phorealistic Rendering”, 2001
20. *Color Quantization*,. Back-Cover dos Anais do SIBGRAPI’97, 1997
21. *Motion Capture*,. Back-Cover dos Anais do SIBGRAPI’97, 1997
22. *Noisy Sphere*,. Cover de Journal of Graphical Tools, v. 1, n. 2, 1996.
23. *Diamond House*,. Folha de Rosto dos Anais do SIBGRAPI’96, 1996
24. *Tropical Birds*,. Back-Cover dos Anais do SIBGRAPI’96, 1996
25. *Dois Toros*. Poster, Workshop on Geometric Modeling, IMPA, 1991
26. *Info 87*. Cover, Revista Dados e Idéias, 12(112), September 1991
27. *Miss Liberty*. Cover, Millimeter Magazine, June 1986
28. *EGG*. Cover, Backstage Feature Magazine, August 1986 (special issue on Animation, Image Technologies and Special Effects)
29. *70’s Couch*. Cover, POST Journal, August 1986 (special issue on Next Generation of 3D Special Effects)
30. *Frank*. Cover, Revista Info, June 1985

7.7. EXHIBITS

1. *V-Horus*, Museu Nacional - PUC-Rio, 2019-2020
2. *Alma do Mundo: Leonardo 500 anos*, Biblioteca Nacional, 2019
3. *+Copacabana*, Escola Eleva, March 2017
4. *Indisciplinas*, Casa França-Brasil, November 2016
5. *Olhar 3D*, MAST, Janeiro 2015
6. *Regards dans les espaces de dimension 3*, Paris, Março 2013
7. *VISGRAF Lab*, Feira FAPERJ 2011.
8. *Panoramas do Rio de Janeiro*. Mostra Art Outsiders, Semana do Brasil na França, October 2005
9. *Animação em 5 Movimentos*. Mostra Cinético Digital, Itau Cultural, July 2005
10. *Visorama 3*. Semana da Ciencia, October 2004
11. *Review on Visorama*. MCT, October 2003
12. *Visorama 2*. COPPE - UFRJ, November 2002
13. *Observatório Virtual*. A Paisagem Carioca, Museu de Arte Moderna, RJ, August 2000
14. *Visorama*. II Mostra Petrobras de Realidade Virtual, July 1999
15. *Dithering and Multiscale Implicit Models*. Mostra Retrospectiva de Imagens XV Congresso da SBC e XX Conferencia Latino-Americana de Informática, August 1995
16. *Venice 79 - The Photography*. Venice, 1979
17. *The First Show of Contemporary Latin American Photography*. Mexico City, 1979
18. *UERJ Exhibition of Photographs*. Rio de Janeiro, 1977

8. CAREER HIGHLIGHTS

8.1. PRIZES AND HONOURS

In Most Downloaded Computers & Graphics Articles - "*Efficient 3D object recognition using foveated point clouds*", 2020

Ranked in Top 600 Most Influential Brazilian Scientists - Journal Plos Biology, 2020

Top Title in Springer-IMP A Monograph Series - "From Fourier Analysis to Wavelets" - (downloads and sales), 2018

NVIDIA Research GPU Grant, 2018

Best Computer Graphics/Visualization M.Sc. Dissertation Award (2017), Eduardo Vera Sousa, Luiz Velho (co-advisor), and Leandro A. F. Fernandes (advisor)

Homenagem pelos 60 anos de Carreira, SIBGRAPI, 2016

WIP Honourable Mention Award: "Geometry independent game encapsulation for non-Euclidean geometries", SIBGRAPI, 2015

Member of the Steering Committee of ACM SIGGRAPH Chapter Bogotá, Colombia, 2015.

Member of Fiscal Council, Fundo Patrimonial Endowment do IMPA, 2015.

Recognition Award from IEEE Computer Graphics & Applications, 2015.

Depoimento para o projeto The Communication (R)Evolution, RBS, 2014.

SIBGRAPI 2014 Best Paper Award - "A Sketch-Based Modeling Framework Based on Adaptive Meshes", SBC.

"Image Processing for CG and Vision", top 25% most downloaded eBook of the Springer Collection.

Distinguished Reviewer Award 2012 from the Computers & Graphics Journal.

Member of Comissão de Atividades Científicas - IMPA, 2012

Member elected of Conselho Técnico Científico - IMPA, 2012

SRV 2012 Best Paper Award - "Realistic Shadows on Mobile Augmented Reality", SBC.

SRV 2012 Best Paper Award - "Virtual Table-Teleporter", SBC.

CLEI 2012 Best Paper Award - "Production Framework for Full Panoramic Scenes Luiz Velho, Photorealistic Augmented Reality".

ACM Student Research Competition – Semi-Finalist- "Base Mesh Construction using Global Parametrization" of Francisco Ganacim (supervisor), SIGGRAPH. 2012

Appointed Expert Advisor, European Research Council, 2012

Mostra de Vídeos do SIBGRAPI 2011, Prêmio de Melhor Vídeo Técnico – "Real-time Terrain Modeling using CPU-GPU Coupled Computation", 2011

ACM Student Research Competition - Finalist- "Filter Based Deghosting for Exposure Fusion Video" of Alexandre Chapiro (supervisor), SIGGRAPH. 2011

ACM Student Research Competition – Semi-Finalist- "Real-time Terrain Modeling using CPU-GPU Coupled Computation" of Adrien Bernhardt (supervisor), SIGGRAPH. 2011

Mostra de Vídeos do SIBGRAPI 2010, Prêmio de Melhor Vídeo Técnico (júri e público) – *TuioSketch*, 2010.

First prize Technical Video, "Dance to the Music, Play to the Motion", ACM SIGMAD Animation Festival, 2010.

Second Prize M.Sc. Dissertation, "Esquema Híbrido para Mapas de Iluminação", Aldo Zang (supervisor), CLEI Unesco. 2010

ACM Student Research Competition - Semifinalist- "Guitar Leading Band" of Marcelo Cicconet (supervisor), SIGGRAPH. 2010

Ordem Nacional do Mérito Científico, Presidência da República, 2010

Bolsa Nota 10 – Adriana Schulz (supervisor) – FAPERJ, 2010

Member elected of Conselho Técnico Científico - IMPA, 2009

ACM Student Research Competition - Finalist- "Pandeiro Funk" of Sergio Krakowski (supervisor), SIGGRAPH. 2009

SIBGRAPI 2009 Best Paper Award - "Hermite Interpolation of Implicit Surfaces Luiz Velho, Radial Basis Functions", SBC.

Professor Catedrático, Instituto Superior Técnico. 2009

Best M.Sc. Dissertation Award, "Esquema Híbrido para Mapas de Iluminação", Aldo Zang (supervisor), SIBGRAPI. 2009

Member of Advisory Board of SIBGRAPI 2010, SBC.

Bolsa Cientista do Estado, FAPERJ. 2009

SIBGRAPI 2008 Best Paper Award - "PCA-based 3D Face Photography", SBC.

Member of Comissão de Atividades Científicas - IMPA, 2008

SIBGRAPI 2007 Best Paper Award - "Geodesic Bezier Curves: a Tool for Modeling on Triangulations", SBC.

Mostra de Vídeos do SIBGRAPI 2007, Prêmio de Melhor Animação – *Relativistic Visualization*, 2007

Prêmio Cientista do Estado, FAPERJ, 2008-2010

Concurso de Teses e Dissertações da Sociedade Brasileira de Computação, 2007
2o. Lugar Mestrado - orientador da tese de Bruno Madeira

CGI 2007 Video Festival, Best Brazilian Scientific Video, 2007

CGI 2007 Video Festival, Best Brazilian Artistic Video, 2007

Academic Advisor, Brigham Young University, 2007

Keynote Speaker, ISMM, 2007

Keynote Speaker, SIBGRAPI, 2007

General Chair, Computer Graphics International, 2007

Keynote Speaker - "The Mathematics of Visual Computing", 58 SBPC Annual Meeting, 2006.

Keynote Speaker - "Image Collections", XXIX CNMAC, 2006.

SIBGRAPI 2006 Best Technical Poster - Object Reconstruction Luiz Velho, Photometric Stereo, SBC.

Top Finalist - ACM Student Research Competition
"Hardware-Assisted CSG Rendering" of Fabiano Romeiro (supervisor), SIGGRAPH, 2006.

Grandes Desafios da Computação no Brasil: 2006 - 2016 (participante selecionado), SBC.

SIBGRAPI 2006 Best Paper Award - "Polygonization of volumetric reconstructions from silhouettes", SBC.

SIBGRAPI 2006 Best Paper Award - "Actively Illuminated Objects using Graph-Cuts", SBC.

SIBGRAPI 2005 Best Papers Award, *GEncode: Geometry-driven compression for general meshes*

SIBGRAPI 2005 Best Papers Award, *Shading via Intrinsic Normal Information for Cel Animation*

Melhor Trabalho de Mestrado WTD – SIBGRAPI 2005, *Multi-Resolution 3D Triangulations*

Mostra de Vídeos do SIBGRAPI 2005, Prêmio de 2º Lugar Animação Técnica, 2005

Prêmio Petrobras de Tecnologia, co-orientador de Ricardo Guerra Marroquim, 2005

Keynote Speaker, Third Eurographics Symposium on Geometry Processing, 2005

SIBGRAPI 2004 Best Papers Award, *Geodesic Paths on Triangular Meshes*

SIBGRAPI 2004 Best Papers Award, *Adaptive Deformable Models*

Mostra de Vídeos do SIBGRAPI 2004, Prêmio de Melhor Animação, 2004

Prêmio Cientista Inovador do Estado, FAPERJ, 2004-2007

Honorable Educador Iberoamericano, Consejo Iberoamericano, Peru, 2004

Concurso de Trabalhos de Iniciação Científica, SIBGRAPI, 2003
2o. Lugar - orientador do trabalho Final de Aldo Nogueira e Elaine Prata

Concurso de Teses e Dissertações da Sociedade Brasileira de Computação, 2003
2o. Lugar Doutorado - orientador da tese de Adailson Peixoto

SIBGRAPI 2003 Best Papers Award, *Moving Least Squares Multiresolution Surface Approximation*

SIBGRAPI 2003 Best Papers Award, *Fast Stellar Mesh Simplification*

Professorship Advisor, Harvard University, 2002

Guest Editor, Computer and Graphics, *Special Issue for SIACG*, 2002

First Ibero-American Symposium in Computer Graphics, Co-Chair of the Program Committee, 2002

Member do Conselho Técnico Científico IMPA, 2002

SIBGRAPI 2002 Best Papers Award, *Approximating Parametric Curves Luiz Velho, Strip Trees using Affine Arithmetic*

Tenure Track Professorship Consultant, Princeton University, 2002

ACM SIGGRAPH Advisory Board, Consultant, 2001

Mostra de Vídeos do SIBGRAPI 2001, Prêmio de Melhor Animação na Categoria Técnica, 2001

SIBGRAPI 2001 Best Papers Award, *Algorithmic Shape Modeling Luiz Velho, Subdivision Surfaces*

Tenure Track Professorship Consultant, New York University, 2000

Mostra de Vídeos do SIBGRAPI 99, Prêmio de Melhor Animação na Categoria Técnica, 1999

ACM SIGGRAPH Papers Committee Member, 1999, 2000, 2002, 2003

VI CLEI-UNESCO Contest on Masters Thesis, 1999

Second Prize Award: *Um Sistema de Animação Baseado em Movimento Capturado*
orientador da tese de Fernando Wagner da Silva

XII Concurso de Teses e Dissertações da Sociedade Brasileira de Computação, 1999

2o. Lugar Mestrado: *Um Sistema de Animação Baseado em Movimento Capturado*
orientador da tese de Fernando Wagner da Silva

II Prêmio Compaq de Estímulo à Pesquisa e Desenvolvimento em Informática,
Menção Honrosa na Categoria Científica, 1997

Mostra de Vídeos do SIBGRAPI 97, Prêmio de Melhor Animação na Categoria Técnica, 1997

Citado no Who's Who in Science and Technology, Marquis, New Providence, 1997

Citado no Men of Achievement 97, International Biography Center, Cambridge, 1997

Guest editor, special issue on Computer Graphics and Image Processing, Journal of the Brazilian Computer Society. 1996

IX Brazilian Symposium on Computer Graphics and Image Processing, Chair of the Program Committee, 1996

Open Fellowship - University of Toronto, 1991

8.2. PATENTS

1. Continuation of *Method for representing musical scales and Electronic musical device*
Jul, 2016, United States Patent 9,424,826,
2. *Method for representing musical scales and Electronic musical device*
Apr, 2015, United States Patent 9,099,013.
3. *Processo para exibição estereoscópica horizontal baseado em correspondências.*
INPI, 2015
4. *Processo de captura e exibição de imagens estereoscópicas, aplicação e uso relacionado.*
INPI, 2012
5. *Método de organização de dados multidimensional.*
INPI, 2010
6. *Método para representar escalas musicais e Dispositivo electrónico musical*
INPI 2010
7. *Meio Tom Digital*
INPI, 2000
8. *Method for Color Digital Halftoning Luiz Velho,Space Filling Curve*
Jan. 11, 1999. United States Patent 5,855,433
9. *Digital Halftoning Luiz Velho,Space Filling Curve*
Feb. 11, 1997, United States Patent 5,602,943.

8.3. SOFTWARE

1. Web Orchestra
INPI, 2017
2. Sistema Revelar
INPI, 2016
3. *EXPO*
INPI, 2014
4. *Reactoon 2D e 3D*
INPI, 2013
5. *Exploratorium*
INPI, 2013
6. *VISORAMA: A viewing device for panoramic images*
filed under the Disclosure Document program - US Patent Office