



Leonardo Koller Sacht

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Born: January 23, 1987—Joinville, Brazil

Nationality: Brazilian

Current position

2014-present Assistant Professor, Department of Mathematics, Universidade Federal de Santa Catarina, Brazil

Previous position

2018-2019 Visiting Professor, Department of Computer Science, University of Toronto, Canada

Research areas

Geometry processing • Image processing • Applied mathematics

Education

2010-2014 D.Sc. in Mathematics, IMPA, Brazil
Dissertation: Optimized quasi-interpolators for image reconstruction and consistent volumetric discretizations inside self-intersecting surfaces
Advisor: Diego Nehab

2008-2010 M.Sc. in Mathematics (major in Computer Graphics), IMPA, Brazil
Thesis: Content-based projections for panoramic images and videos
Advisors: Paulo Cezar Carvalho and Luiz Velho

2004-2008 B.Sc. in Mathematics and Scientific Computing, UFSC, Brazil
Undergraduate thesis: Pascal matrices - computational and theoretical aspects (in Portuguese)
Advisor: Licio Hernanes Bezerra

Complementary Education

2012-2013 Visiting student at ETH Zürich, Switzerland
Supervisor: Olga Sorkine-Hornung

Grants & awards

2018 Fields research fellowship
2017-2020 CNPq/Universal research grant

2010-2014 CNPq D.Sc. scholarship
2012-2013 Swiss Government research scholarship
2008-2010 CNPq M.Sc. scholarship

Publications

JOURNAL PUBLICATIONS

- 2022 Leonardo Sacht. "Structure-aware bottle cap art", *Computers & Graphics*, volume 107, October 2022 (SIBGRAPI 2022).
- 2020 Leonardo Souto Ferreira, Leonardo Sacht. "Bounded biharmonic blending of Möbius transformations for flexible omnidirectional image rectification", *Computers & Graphics*, volume 93, December 2020 (SIBGRAPI 2020).
- 2018 Leonardo Sacht, Diego Nehab, Rodolfo Schulz de Lima. "Real-time continuous image processing", *International Journal of Image and Graphics*, volume 18, issue 3.
- 2017 Leonardo Souto Ferreira, Leonardo Sacht, Luiz Velho. "Local Moebius transformations applied to omnidirectional images", *Computers & Graphics*, volume 68, November 2017 (SIBGRAPI 2017).
- 2015 Leonardo Sacht, Etienne Vouga, Alec Jacobson. "Nested cages", *ACM Transactions on Graphics*, volume 34, Issue 6 (SIGGRAPH Asia 2015).
- 2015 Leonardo Sacht, Diego Nehab. "Optimized quasi-interpolators for image reconstruction", *IEEE Transactions on Image Processing*, volume 24, issue 12.
- 2015 Luis Penaranda, Luiz Velho, Leonardo Sacht. "Real-time correction of panoramic images using hyperbolic Moebius transformations", *Journal of Real-Time Image Processing*, May 2015.
- 2013 Leonardo Sacht, Alec Jacobson, Daniele Panozzo, Christian Schueller, Olga Sorkine-Hornung. "Consistent volumetric discretizations inside self-intersecting surfaces", *Computer Graphics Forum*, volume 32, issue 5 (SGP 2013).
- 2011 Licio Bezerra, Leonardo Sacht. "On computing Bezier curves by Pascal matrix methods", *Applied Mathematics and Computation*, volume 217, issue 24.

OTHER PUBLICATIONS

- 2021 Rafael Borges de Souza, Leonardo Sacht. "Metrics for image processing" (in Portuguese), abstracts, UFRGS and UFFS Mathematics conferences.
- 2020 Tulio Falconi da Gama Leite, Leonardo Sacht. "Graphical interface for training of search and rescue aviation observers" (in Portuguese), full paper, *Spectrum* (Brazilian Air Force publication), Volume 21.
- 2019 Carlos Eduardo Leal de Castro, Leonardo Sacht. "Normal transformations for overhang reduction", SIBGRAPI 2019, Workshop of Works in Progress.
- 2017 Mateus Souza Oliveira, Leonardo Sacht. "Conformal transformations from the sphere to the plane" (in Portuguese), extended abstract, ERMAC (Regional Congress on Applied and Computational Mathematics) 2019.
- 2017 Joao Paulo Navarro Barbosa, Leonardo Sacht. "Fourier domain anti-aliasing recovery" (in Portuguese), extended abstract, J3M - UFPR (undergraduate works)
- 2017 Carlos Eduardo Leal de Castro, Leonardo Sacht. "Application of image reconstruction methods to audio signals" (in Portuguese), extended abstract, J3M - UFPR (undergraduate works).
- 2017 Thais Muraro, Daniel Martins, Leonardo Sacht. "Vector analysis of the cable tension conditions", full paper, International Symposium on Multibody Systems and Mechatronics (MuSMe).
- 2017 Maria Eduarda Duarte, Leonardo Sacht. "Mean curvature flow and applications", short paper, SIBGRAPI Workshop of Undergraduate Works (WUW).

- 2017 Airton Jose Schmitt Jr., Leonardo Sacht. “Analysis of optimized quasi-interpolators”, short paper, SIBGRAPI Workshop of Undergraduate Works (WUW).
- 2013 Leonardo Sacht, Luiz Velho. “Complex plane transformations for manipulation and visualization of panoramas”, short paper, International Conference on Computer Graphics Theory and Applications (GRAPP).
- 2011 Leonardo Sacht, Luiz Velho, Diego Nehab, Marcelo Cicconet. “Scalable motion-aware panoramic videos”, technical sketch, SIGGRAPH Asia.
- 2010 Leonardo Sacht, Paulo Cezar Carvalho, Luiz Velho. “Optimizing projections from the unit sphere to the image plane for generation of panoramic images”, abstract, Brazilian Congress on Applied and Computational Mathematics (CNMAC) .
- 2010 Leonardo Sacht, Paulo Cezar Carvalho, Luiz Velho. “Content-based projections for panoramic images and videos” (short version of my Master thesis), SIBGRAPI Workshop of Thesis and Dissertations (WTD).
- 2010 Leonardo Sacht, Paulo Cezar Carvalho, Luiz Velho, Marcelo Gattass. “Face and straight line detection in equirectangular images”, Workshop of Computer Vision (WVC).

Languages

English (fluent), Portuguese (native).

Teaching

- Fall 2023 Linear algebra, engineerings, UFSC.
- Fall 2023 Calculus 4, engineerings, UFSC.
- Spring 2023 Linear algebra, engineerings, UFSC.
- Fall 2022 Linear algebra, engineerings, UFSC.
- Spring 2022 Precalculus, engineerings, UFSC.
- Fall 2021 Precalculus, engineerings, UFSC.
- Spring 2021 Precalculus, engineerings, UFSC.
- Fall 2020 Scientific computing, Mathematics, UFSC.
- Fall 2020 Precalculus, engineerings, UFSC.
- Spring 2020 Linear algebra II, engineerings, UFSC.
- Spring 2020 Mathematical analysis, Mathematics, UFSC.
- Fall 2019 Linear algebra II, Mathematics, UFSC.
- Fall 2019 Linear algebra, engineerings, UFSC.
- Spring 2018 Linear algebra II, engineerings, UFSC.
- Spring 2018 Calculus C, engineerings, UFSC.
- Fall 2017 Linear algebra I, engineerings, UFSC.
- Fall 2017 Calculus D, engineerings, UFSC.
- Spring 2017 Discrete mathematics, Mathematics, UFSC.
- Spring 2017 Linear algebra II, Mathematics, UFSC.
- Fall 2016 Linear algebra I, engineerings, UFSC.
- Fall 2016 Linear algebra, engineerings, UFSC.
- Spring 2016 Calculus B, engineerings, UFSC.
- Spring 2016 Linear algebra II, Mathematics, UFSC.
- Fall 2015 Linear algebra I, Mathematics, UFSC.
- Fall 2015 Calculus B, Computer Science, UFSC.
- Spring 2015 Calculus D, engineerings, UFSC.
- Spring 2015 Linear algebra II, engineerings, UFSC.

Fall 2014 Calculus D, engineerings, UFSC.
Fall 2014 Linear algebra I, engineerings, UFSC.

Advising and mentoring

2020-2022 Beatriz Carolina Souza Rodrigues, undergraduate student, UFSC.
2021-2022 Lara Fischer, undergraduate student, UFSC.
2020-2022 Alessandro Schneider, M.Sc. student (co-advisor), UFSC.
2019-2021 Rafael Borges de Souza, undergraduate student, UFSC.
2020-2021 Bruno Rodrigues Cabral, undergraduate student, UFSC.
2021-2021 Bryce van Ross, Deniz Ozbay and Talant Talipov, Summer Geometry Institute fellows, MIT.
2016-2020 Carlos Eduardo Leal de Castro, undergraduate and M.Sc. student, UFSC.
2017-2020 Mateus Souza Oliveira, undergraduate student, UFSC.
2020-2020 Bernardo Rodrigues Martorano, undergraduate student, UFSC.
2015-2019 Leonardo Souto Ferreira, undergraduate student, UFSC.
2016-2018 Joao Paulo Navarro Barbosa, undergraduate student, UFSC.
2016-2018 Maria Eduarda Duarte, undergraduate student, UFSC.
2016-2018 Aline Regina Becher, M.Sc. student, UFSC.
2016-2018 Airton Jose Schmidt Jr., undergraduate student, UFSC.
2015-2017 Tulio Falconi da Gama Filho, M.Sc. student, UFSC.
2016-2017 Luiz Arthur Zimmer de Cerqueira Cezar Drapichinski, undergraduate student, UFSC.
2016-2017 Giulia Platt Maffezzolli, undergraduate student, UFSC.

Technical Papers Committees

2021-2023 Symposium on Geometry Processing (SGP)
2017-2023 Conference on Graphics, Patterns and Images (SIBGRAPI)
2019 Computational Visual Media Conference (CVM)
2018 Pacific Graphics
2018 International Conference on Geometric Modeling and Processing (GMP)

Referee Service

2017-2023 Computer Graphics Forum / SGP / Eurographics / Pacific Graphics
2018-2023 Computers & Graphics / SIBGRAPI
2019-2023 International Journal of Image and Graphics
2022-2023 Computational & Applied Mathematics
2023-2023 Journal of Real-Time Image Processing
2023-2023 Pattern Recognition Letters
2014-2021 ACM Transactions on Graphics / SIGGRAPH / SIGGRAPH Asia
2017-2018 Computer Aided Geometric Design / GMP
2017-2018 CNMAC
2016 IEEE Transactions on Visualization and Computer Graphics
2013 The Visual Computer