

# FERNANDA ALCÂNTARA ANDALÓ, PH.D.

updated on February 29, 2024

I am passionate about researching and developing Machine Learning and Computer Vision solutions to solve real-world problems. In my current position at The LEGO Group, I lead machine learning projects and research solutions targeted at digital products and internal systems. I am also co-founder and Chief Scientist at SciPet, where I have coordinated machine learning research projects applied to animal biometrics for social good. Besides that, I am a researcher associated with the Institute of Computing, Unicamp, where I co-supervise Ph.D. candidates. In 2012, I completed my Ph.D. in Computer Science at the University of Campinas (Unicamp). During my studies, I was a visiting research fellow at the School of Engineering, Brown University, for a year. In 2013, I was a postdoctoral researcher at the VISGRAF Lab, IMPA, and during 2014-2015 I worked at the Samsung Research Institute Brazil as a researcher. From 2015 to 2018, I worked as a postdoctoral researcher at Unicamp in collaboration with Motorola. I am an elected member of the IEEE Information Forensics and Security Technical Committee (IFS-TC) for 2023-2025, and I was the 2016-2017 Chair of the IEEE Women in Engineering (WIE) South Brazil Section.

## PERSONAL INFORMATION

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## RESEARCH INTERESTS

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### Research Areas

Machine Learning and Visual Computing

### Topics

pattern recognition, biometrics, deep learning, self-supervised learning, metric learning, multi-task learning, content-based image retrieval, 3D reconstruction, multiview stereo

## PROFESSIONAL EXPERIENCE

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### The LEGO Group

Lead AI Engineer at Play AI & Algorithms

Lead AI projects, and R&D of deep learning methods for digital products (e.g., [LEGO VIDIYO](#) and [LEGO Hidden Side](#)).

Aug 2019 – Present  
Billund, Denmark

### University of Campinas (Unicamp)

Accredited Researcher at the Institute of Computing

Research on machine learning and co-supervision of Ph.D. candidates.

Mar 2019 – Present  
Campinas, Brazil

### SciPet Innovative Technology Solutions

Co-founder and CSO

Coordination of research projects and research on applied machine learning methods for animal biometrics (e.g., [CrowdPet](#)).

Campinas, Brazil  
Sep 2016 – Present

### University of Campinas (Unicamp) | Motorola Mobility

Postdoctoral Researcher in partnership with Motorola Mobility

R&D of biometric methods for mobile devices.

- “BioLive: Multi-feature and open-set authentication techniques for mobile devices”;  
- “BioLive-360: open-set face recognition in 360° images”.

Sep 2015 – Dec 2018  
Campinas, Brazil

### University of Campinas (Unicamp)

Lecturer in undergraduate courses at the Institute of Computing

Teaching “Algorithms and Computer Programming”.

Mar 2017 – Jul 2017  
Campinas, Brazil

### SAMSUNG Research Institute Brazil (SRBR)

Researcher in Visual Computing

R&D of methods to generate highly compressible videos for computer vision tasks.

Apr 2014 – Sep 2015  
Campinas, Brazil

### National Institute for Pure and Applied Mathematics (IMPA)

Postdoctoral Researcher at the VISGRAF Lab

Research on texture synthesis for 3D surfaces.

Dec 2012 – Apr 2014  
Rio de Janeiro, Brazil

## Higher Education Institute of Brasília (IESB)

Lecturer in undergraduate courses

Teaching “Programming Logic” and “Topics in Computer Science: Image Processing”.

Aug 2012 – Dec 2012

Brasília, Brazil

## University of Campinas (Unicamp)

Teaching Assistant in undergraduate courses at Institute of Computing

Teaching “Data Structures”.

Aug 2005 – Jul 2009

Campinas, Brazil

## University of Brasília (UnB)

Undergraduate researcher and System analyst

- Research on 3D interfaces for controlling robots over the Internet;
- Development of a system for remote art education.

Feb 2003 – May 2005

Brasília, Brazil

## EDUCATION

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### Ph.D. in Computer Science

University of Campinas (Unicamp), Institute of Computing

Project: “Computer Vision methods applicable to Forensic Science”

Advisor: Prof. Siome K. Goldenstein

My thesis presents three Computer Vision methods that can be applied in forensic investigations: one for photogrammetry, which allows measurement of objects heights in single images; a multiview stereo framework for the recovery of 3D footwear impressions; and a method for image reconstruction from a collection of small unordered fragments using a quadratic programming formulation.

Mar 2007 – Nov 2012

Campinas, Brazil

### Visiting Research Fellow

Brown University, School of Engineering

Internship as part of my Ph.D. studies, supervised by Prof. Gabriel Taubin.

Dec 2010 – Dec 2011

Providence, RI, USA

### Master of Computer Science

University of Campinas (Unicamp), Institute of Computing

Project: “Image descriptors based on Tensor Scale”

Advisors: Prof. Ricardo da S. Torres and Prof. Alexandre X. Falcão

My dissertation presents shape descriptors based on the Tensor Scale morphometric parameter for content-based image retrieval. We also introduce efficient algorithms for the computation of Tensor Scale based on the Image Foresting Transform (IFT).

Mar 2005 – Mar 2007

Campinas, Brazil

### Bachelor of Computer Science

University of Brasília (UnB), Computer Science Department

Project: “Water simulation in a virtual world based on a Pieter Bruegel’s painting”

Advisor: Prof. Aluizio Arcela

Aug 1999 – Jun 2004

Brasília, Brazil

## PUBLICATIONS

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### Journal articles

- J.P. CARDENUTO, J. YANG, R. PADILHA, R. WAN, D. MOREIRA, H. LI, S. WANG, F.A. ANDALÓ, S. MARCEL, A. ROCHA, “The Age of Synthetic Realities: Challenges and Opportunities”, *APSIPA Transactions on Signal and Information Processing*, 12(1), e44, 2023. doi:10.1561/116.00000138
- G. BERTOCCO, A. THEÓFILO, F.A. ANDALÓ, A. ROCHA, N. JACOBS, “Leveraging Ensembles and Self-Supervised Learning for Fully-Unsupervised Person Re-Identification and Text Authorship Attribution”, *IEEE Transactions on Information Forensics and Security (TIFS)*, 18, 3876–3890, 2023. doi:10.1109/TIFS.2023.3289448
- R. PADILHA, T. SALEM, S. WORKMAN, F.A. ANDALÓ, A. ROCHA, N. JACOBS, “Content-Aware Detection of Temporal Metadata Manipulation”, *IEEE Transactions on Information Forensics and Security (TIFS)*, 17, 1316–1327, 2022. doi:10.1109/TIFS.2022.3159154
- W. DIAS, F.A. ANDALÓ, R. PADILHA, G. BERTOCCO, W. ALMEIDA, P. COSTA, A. ROCHA, “Cross-dataset emotion recognition from facial expressions through convolutional neural networks”, *Journal of Visual Communication and Image Representation (JVCI)*, 82, 103395, 2022. doi:10.1016/j.jvcir.2021.103395
- G. BERTOCCO, F.A. ANDALÓ, A. ROCHA, “Unsupervised and self-adaptative techniques for cross-domain person re-identification”, *IEEE Transactions on Information Forensics and Security (TIFS)*, 16, 4419–4434, 2021. doi:10.1109/TIFS.2021.3107157
- R. PADILHA, F.A. ANDALÓ, B. LAVI, L.A.M. PEREIRA, A. ROCHA, “Temporally Sorting Images from Real-World Events”, *Pattern Recognition Letters (PRL)*, 147, 212–219, 2021. doi:10.1016/j.patrec.2021.04.027
- R. PADILHA, A. THEÓFILO, F.A. ANDALÓ, D.A. VEGA-OLIVEROS, J.P. CARDENUTO, G. BERTOCCO, J. NASCIMENTO, J. YANG, A. ROCHA, “Artificial Intelligence and the challenges of Digital Forensic Science in the 21<sup>st</sup> century”, *Estudos Avançados*, 35(101), 113–138, 2021 (In Portuguese). doi:10.1590/s0103-4014.2021.35101.009

- W.R. ALMEIDA, F.A. ANDALÓ, R. PADILHA, G. BERTOCCO, W. DIAS, R. DA S. TORRES, J. WAINER, A. ROCHA, “Detecting face presentation attacks in mobile devices with a patch-based CNN and a sensor-aware loss function”, *PLoS ONE*, 15(9), e0238058, 2020. doi:10.1371/journal.pone.0238058
- R. PADILHA, F.A. ANDALÓ, G. BERTOCCO, W.R. ALMEIDA, W. DIAS, T. RESEK, R. DA S. TORRES, J. WAINER, A. ROCHA, “Two-tiered face verification with low-memory footprint for mobile devices”, *IET Biometrics*, 9(5), pp. 205–215, 2020. doi:10.1049/iet-bmt.2020.0031
- R. PADILHA, C.M. RODRIGUES, F.A. ANDALÓ, G. BERTOCCO, Z. DIAS, A. ROCHA, “Forensic event analysis: from seemingly unrelated data to understanding”, *IEEE Security & Privacy*, 18(6), pp. 23–32, 2020. doi:10.1109/MSEC.2020.3000446
- A. FERREIRA, T. CARVALHO, F.A. ANDALÓ, A. ROCHA, “Counteracting the contemporaneous proliferation of digital forgeries and fake news”, *Anais da Academia Brasileira de Ciências (AABC)* 91(1), e20180149, 2019. doi:10.1590/0001-3765201820180149
- F.A. ANDALÓ, V. TESTONI, O.A.B. PENATTI, “TWM: a framework for creating highly compressible videos targeted to computer vision tasks”, *Pattern Recognition Letters (PRL)* 114(15), pp. 63–72, 2018. doi:10.1016/j.patrec.2017.08.025
- F.A. ANDALÓ, G. TAUBIN, S. GOLDENSTEIN, “PSQP: Puzzle Solving by Quadratic Programming”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)* 39(2), pp. 385–396, 2017. doi:10.1109/TPAMI.2016.2547394
- F.A. ANDALÓ, G. TAUBIN, S. GOLDENSTEIN, “Efficient height measurements in single images based on the detection of vanishing points”, *Computer Vision and Image Understanding (CVIU)* 138, pp. 51–60, 2015. doi:10.1016/j.cviu.2015.03.017
- F.A. ANDALÓ, P.A.V. MIRANDA, R. DA S. TORRES, A.X. FALCÃO, “Shape feature extraction and description based on Tensor Scale”, *Pattern Recognition (PR)* 43(1), pp. 26–36, 2010. doi:10.1016/j.patcog.2009.06.012
- D.B. CATANI, L.M.A. TENUTA, F.A. ANDALÓ, J.A. CURY, “Fluorosis in rats exposed to oscillating chronic fluoride doses”, *Brazilian Dental Journal (BDJ)* 21(1), pp. 32–37, 2010. doi:10.1590/S0103-64402010000100005

## Book chapters

- R. PADILHA, F.A. ANDALÓ, L.A.M. PEREIRA, A. ROCHA., “Unraveling the Notre Dame Cathedral fire in space and time: an X-coherence approach”, *Crime Science and Digital Forensics: A Holistic View*, CRC Press, 2021.
- L.A.M. PEREIRA, A. PINTO, F.A. ANDALÓ, A. FERREIRA, B. LAVI, A. SORIANO-VARGAS, M. CIRNE, A. ROCHA., “The rise of data-driven models in presentation attack detection”, *Deep Biometrics*, Springer, 2020. doi:10.1007/978-3-030-32583-1\_13

## Refereed Conference and Workshop papers

- K. NGUYEN,..., G. BERTOCCO, F.A. ANDALÓ, T.E. BOULT, A. ROCHA, ET AL., “AG-ReID 2023: Aerial-Ground Person Re-identification Challenge Results”, In *International Joint Conference on Biometrics (IJCB)*, 2023.
- A. GUIMARÃES, L. NEUMANN, F.A. ANDALÓ, D.F. ARANHA, E. BORIN, “Homomorphic evaluation of large look-up tables for inference on human genome data in the cloud”, In *International Symposium on Computer Architecture and High Performance Computing Workshops (SBAC-PADW)*, 2022. doi:10.1109/SBAC-PADW56527.2022.00015
- A. THEÓFILO, R. PADILHA, F.A. ANDALÓ, A. ROCHA, “Explainable Artificial Intelligence for Authorship Attribution on Social Media”, In *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2022. doi:10.1109/ICASSP43922.2022.9746262
- R. PADILHA, F.A. ANDALÓ, A. ROCHA, “Improving the chronological sorting of images through occlusion: A study on the Notre-Dame cathedral fire”, In *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020. doi:10.1109/ICASSP40776.2020.9054120
- M. CIRNE, F.A. ANDALÓ, R. DIAS, T. RESEK, G. BERTOCCO, R. DA S. TORRES, A. ROCHA, “Deep face verification for spherical images”, In *IEEE International Conference on Image Processing (ICIP)*, 2019. doi:10.1109/ICIP.2019.8803538
- R. PADILHA, F.A. ANDALÓ, R. DA S. TORRES, A. ROCHA, J. WAINER, “Two-tiered facial verification for mobile devices”, In *Workshop of Theses and Dissertations, Conference on Graphics, Patterns and Images (WTD/SIBGRAPI)*, Foz do Iguaçu, PR, Brazil, 2018.
- Z. BOULKENAFET,..., W.R. ALMEIDA, F.A. ANDALÓ, R. PADILHA, G. BERTOCCO, W. DIAS, J. WAINER, R. DA S. TORRES, A. ROCHA, ET AL., “A Competition on generalized software-based face presentation attack detection in mobile scenarios”. In *International Joint Conference on Biometrics (IJCB)*, pp.688–696, Denver, CO, USA, 2017. doi:10.1109/btas.2017.8272758
- F.A. ANDALÓ, O.A.B. PENATTI, V. TESTONI, “Transmitting what matters: task-oriented video composition and compression”, In *Conference on Graphics, Patterns and Images (SIBGRAPI)*, pp. 72–79, São José dos Campos, SP, Brazil, 2016. doi:10.1109/SIBGRAPI.2016.019
- F.A. ANDALÓ, S. GOLDENSTEIN, “Computer vision methods applicable to forensic science”, In *VII Workshop of Theses and Dissertations, Conference on Graphics, Patterns, and Images (WTD/SIBGRAPI)*, pp. 136–144, Arequipa, Peru, 2013.
- F.A. ANDALÓ, G. TAUBIN, S. GOLDENSTEIN, “Solving image puzzles with a simple Quadratic Programming formulation”, In *Conference on Graphics, Patterns and Images (SIBGRAPI)*, pp. 63–70, Ouro Preto, MG, Brazil, 2012. doi:10.1109/SIBGRAPI.2012.18
- F.A. ANDALÓ, F. CALAKLI, G. TAUBIN, S. GOLDENSTEIN, “Accurate 3D footwear impression recovery from photographs”, In *International Conference on Imaging for Crime Detection and Prevention (ICDP)*, pp. 1–6, Kingston Upon Thames, UK, 2011. doi:10.1049/ic.2011.0121
- F.A. ANDALÓ, G. TAUBIN, S. GOLDENSTEIN, “Detecting vanishing points by segment clustering on the projective plane for single-view photogrammetry”, In *IEEE Workshop on Information Forensics and Security (WIFS)*, pp. 1–6, Seattle, WA, USA, 2010. doi:10.1109/WIFS.2010.5711453

- [F.A. ANDALÓ](#), G. TAUBIN, S. GOLDENSTEIN, “Vanishing point detection by segment clustering on the projective space”, In *Workshop on Reconstruction and Modeling of Large-scale 3D Virtual Environments, European Conference on Computer Vision (RMLE/ECCV)*, Hersonissos, Greece, 2010. *Trends and Topics in Computer Vision: ECCV 2010 Workshops, Revised Selected Papers, Part II*, pp. 324–337, 2012. doi:10.1007/978-3-642-35740-4\_25
- R. DA S. TORRES, J.A. MONTOYA-ZEGARRA, J.A. DOS SANTOS, C.D. FERREIRA, O.A.B. PENATTI, [F.A. ANDALÓ](#), J.G.A. ALMEIDA, “Image retrieval: challenges and new directions”, In *Seminário de Software e Hardware (SEMISH)*, Belém, PA, Brazil, 2008 (In Portuguese).
- [F.A. ANDALÓ](#), R. DA S. TORRES, A.X. FALCÃO, “Shape descriptors based on Tensor Scale”, In *Workshop of Theses and Dissertations, Brazilian Symposium on Computer Graphics and Image Processing (WTDCGPI/SIBGRAPI)*, pp. 136–144, Campo Grande, MS, Brazil, 2008.
- [F.A. ANDALÓ](#), P.A.V. MIRANDA, R. DA S. TORRES, A.X. FALCÃO, “A new shape descriptor based on Tensor Scale”, In *International Symposium on Mathematical Morphology (ISMM)*, pp. 141–152, Rio de Janeiro, RJ, Brazil, 2007.
- [F.A. ANDALÓ](#), P.A.V. MIRANDA, R. DA S. TORRES, A.X. FALCÃO, “Detecting contour saliences using Tensor Scale”, In *IEEE International Conference on Image Processing (ICIP)*, vol. 6, pp. 349–352, San Antonio, TX, USA, 2007. doi:10.1109/ICIP.2007.4379593

## Patents

- [F.A. ANDALÓ](#), O.A.B. PENATTI, V. TESTONI, F.L. KOCH, “System and method for context-based video composition and compression from objects with normalized spatial resolution”, [BR102015005929B1](#), 2021. Patent granted, filed by Samsung.
- [F.A. ANDALÓ](#), R. PADILHA, W.R. ALMEIDA, G. BERTOCCO, J. WAINER, R. DA S. TORRES, A. ROCHA, “Multiple-tiered facial recognition”, [US10733279B2](#), 2020. Patent granted, filed by Motorola.
- [F.A. ANDALÓ](#), O.A.B. PENATTI, V. TESTONI, F.L. KOCH, “System and method for video context-based composition and compression from normalized spatial resolution objects”, [US9699476B2](#), 2017. Patent granted, filed by Samsung.
- O. VOLPATO FILHO, F.R. PIVA, [F.A. ANDALÓ](#), A.F.M. DE OLIVEIRA, E.A. DO VALLE JR., “Animal management system and identification method”, [WO2020047626A1](#), 2020. Patent pending, filed by SciPet.
- [F.A. ANDALÓ](#), O.A.B. PENATTI, F.L. KOCH, “System and method for analyzing multivariate data extracted from images captured in different views”, [BR102015005930A2](#), 2016. Patent pending, filed by Samsung.

## Preprints and Technical reports

- J.P. CARDENUTO, J. YANG, R. PADILHA, R. WAN, D. MOREIRA, H. LI, S. WANG, [F.A. ANDALÓ](#), S. MARCEL, A. ROCHA, “The Age of Synthetic Realities: Challenges and Opportunities”, *arXiv*, 2306.11503, 2023. [arXiv:2306.11503](#)
- G. BERTOCCO, A. THEÓFILO, [F.A. ANDALÓ](#), A. ROCHA, “Leveraging Ensembles and Self-Supervised Learning for Fully-Unsupervised Person Re-Identification and Text Authorship Attribution”, *arXiv*, 2202.03126, 2022. [arXiv:2202.03126](#)
- G. BERTOCCO, [F.A. ANDALÓ](#), A. ROCHA, “Unsupervised and self-adaptative techniques for cross-domain person re-identification”, *arXiv*, 2103.11520, 2021. [arXiv:2103.11520](#)
- R. PADILHA, T. SALEM, S. WORKMAN, [F.A. ANDALÓ](#), A. ROCHA, N. JACOBS, “Content-Based Detection of Temporal Metadata Manipulation”, *arXiv*, 2103.04736, 2021. [arXiv:2103.04736](#)
- [F.A. ANDALÓ](#), G. CARNEIRO, G. TAUBIN, S. GOLDENSTEIN, L. VELHO, “Automatic reconstruction of ancient Portuguese tile panels”, *A773/2016, IMPA*, 2016.
- [F.A. ANDALÓ](#), L. VELHO, “A graph cut approach to texture synthesis on 3D surfaces”, TR-02-2014, *VISGRAF, IMPA*, 2014.

## Public datasets

- R. PADILHA, [F.A. ANDALÓ](#), B. LAVI, L.A.M. PEREIRA, A. ROCHA, “Notre-Dame Cathedral Fire Dataset”, 2020. doi:10.6084/m9.figshare.11787333.v2
- W.R. ALMEIDA, [F.A. ANDALÓ](#), R. PADILHA, G. BERTOCCO, W. DIAS, R. DA S. TORRES, J. WAINER, A. ROCHA, “RECOD Mobile Presentation-Attack Dataset (RECOD-MPAD)”, 2020. doi:10.5281/zenodo.3749309
- M. CIRNE, [F.A. ANDALÓ](#), R. DIAS, “MOT-360 Face”, 2019. doi:10.6084/m9.figshare.8120747.v3
- R. PADILHA, [F.A. ANDALÓ](#), A. ROCHA, “RECOD Selfie Dataset (RCD-Selfie)”, 2017. doi:10.6084/m9.figshare.5427142.v3

## HONORS & AWARDS

- 3<sup>RD</sup> PLACE in the Aerial-Ground Person ReID Challenge, International Joint Conference on Biometrics (IJCB), 2023.
- Elected Member of the IEEE Information Forensics and Security Technical Committee (IFS-TC), 2023-2025.
- Unicamp Inventors Award, “Licensed Technology” category, 2019.
- 1<sup>ST</sup> PLACE in the Unicamp Ventures Entrepreneur Award, “Social Impact case” category (awarded to SciPet), 2018.
- 1<sup>ST</sup> PLACE in the INOVA Unicamp Award for Innovation Initiation, as Gabriel Bertocco’s co-advisor, 2017.
- FINALIST in the INOVA Unicamp Award for Innovation Initiation, as Victor Capone’s advisor, 2017.
- 4<sup>TH</sup> PLACE in the Competition on generalized face presentation attack detection in mobile authentication scenarios, International Joint Conference on Biometrics (IJCB), 2017.
- TOP REVIEWER for Computer Science (top 1%), University of Campinas (1<sup>st</sup> place), and Brazil (5<sup>th</sup> place), Publons Peer Review Awards, 2017.
- Elected Chair of the IEEE Women in Engineering (WIE) South Brazil Section, 2016-2017.

- 2<sup>ND</sup> PLACE in the Face Recognition Challenge, 13<sup>th</sup> IAPR/IEEE/Eurasip Int.l Summer school for advanced studies on biometrics: Biometrics, Forensic Science and the Quest for Identity, 2016.
- BEST POSTER AWARD in the 4<sup>th</sup> International Conference on Imaging for Crime Detection and Prevention (ICDP), 2011.
- HONORABLE MENTION for work published at the 27<sup>th</sup> Annual Meeting of the SBPqO, 2010.
- 1<sup>ST</sup> PLACE in the Workshop of Thesis and Dissertations in Computer Graphics, Image Processing and Computer Vision. XXI Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI), 2008.
- Motorola Mobility Post-doctoral Scholarship, 2015-2018.
- Coordination for the Improvement of Higher Education Personnel (CAPES) Post-doctoral Scholarship, 2012-2014.
- National Counsel of Technological and Scientific Development (CNPq) Visiting Ph.D. Scholarship, 2010-2011.
- National Counsel of Technological and Scientific Development (CNPq) Ph.D. Scholarship, 2008-2010.

## TEACHING EXPERIENCE

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<b>Unicamp</b>	<i>Campinas, Brazil</i>
<i>Corporate course for Motorola Mobility: Complex Data Mining, Deep Learning module.</i>	<i>2018</i>
<i>Extension course: Complex Data Mining, Deep Learning module.</i>	<i>2018</i>
<i>Undergraduate course: Algorithms and Computer Programming.</i>	<i>2017</i>
<i>Undergraduate course: Data Structures, as a teaching assistant.</i>	<i>2009</i>
<b>IESB</b>	<i>Brasília, Brazil</i>
<i>Undergraduate courses: Programming Logic and Image Processing.</i>	<i>2012</i>

## TALKS, PRESENTATIONS & INTERVIEWS

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<b>Let's Data Podcast</b>	<i>Online</i>
<i>Lets Data Podcast # 003 Fernanda Andaló (in Portuguese)</i>	<i>2021</i>
<b>LEGO Tech Summit</b>	<i>Billund, Denmark</i>
<i>- The Open Set problem in Machine Learning and a case study in image classification for Hidden Side</i>	<i>2020</i>
<i>- QA using Image Recognition (with Renan Chagas and Teofilo Monteiro)</i>	<i>2019</i>
<b>GDG DataFest</b>	<i>Campinas, Brazil</i>
<i>Computer Vision with Deep Learning: from academia to industry</i>	<i>2018</i>
<b>IC, Unicamp</b>	<i>Campinas, Brazil</i>
<i>Image Puzzle: Methods, Applications, and Challenges</i>	<i>2018</i>
<b>Motorola Mobility</b>	<i>Jaguariúna, Brazil</i>
<i>Emerging Technologies Series in Deep Learning: fundamentals of Deep Learning</i>	<i>2017</i>
<b>Motorola Research Summit</b>	<i>Campinas, Brazil</i>
<i>BioLive: Authentication for mobile devices</i>	<i>2015~2018</i>
<b>SIBGRAPI</b>	<i>Arequipa, Peru</i>
<i>Computer Vision methods applicable to Forensic Science (poster)</i>	<i>2013</i>
<b>SIBGRAPI</b>	<i>Ouro Preto, Brazil</i>
<i>Solving image puzzles with a simple Quadratic Programming formulation</i>	<i>2012</i>
<b>ICDP</b>	<i>London, UK</i>
<i>Accurate 3D footwear impression recovery from photographs (poster)</i>	<i>2012</i>
<b>ECCV</b>	<i>Heraklion, Greece</i>
<i>Vanishing Point detection by segment clustering on the projective space</i>	<i>2010</i>
<b>SIBGRAPI</b>	<i>Campo Grande, Brazil</i>
<i>Shape descriptors based on Tensor Scale</i>	<i>2008</i>
<b>ICIP</b>	<i>San Antonio, TX, USA</i>
<i>Detecting contour saliencies using Tensor Scale (poster)</i>	<i>2007</i>
<b>ISMM</b>	<i>Rio de Janeiro, Brazil</i>
<i>A new shape descriptor based on Tensor Scale</i>	<i>2007</i>

## Journal reviewer

### IEEE

Transactions on Image Processing (TIP), Transactions on Information Forensics and Security (T-IFS), Transactions on Multimedia (MM), Signal Processing Letters (SPL), Transactions on Pattern Analysis and Machine Intelligence (PAMI), IEEE Systems, Security & Privacy

### Elsevier

Computer Vision and Image Understanding (CVIU), Graphical Models (GMOD), Neurocomputing, Pattern Recognition (PR), Digital Investigation, Pattern Recognition Letters (PRL), Journal of Visual Communication and Image Representation (JVCI), Computers & Graphics

### Others

Computer Graphics Forum, Journal of Communications and Information Systems (JCIS), Revista Brasileira de Criminalística (RBC)

## Conference committee and reviewer

WACV, ICASSP	2024
ICASSP, BMVC, SIBGRAPI, CAI, IJCB (Meta-reviewer)	2023
WACV, ICPR, BMVC	2022
CVPR, ICCV, BMVC, SIBGRAPI	2021
BMVC, ICPR, SIBGRAPI	2020
ICASSP, GlobalSIP, SIBGRAPI	2019
ICASSP, GlobalSIP, SIBGRAPI, SBSeg	2018
ICASSP, MFSec Workshop@ICMR, SIBGRAPI, SBrT, ACNS, ERI-MT	2017
ICASSP, COMPSULMT, ERI-MT	2016
SIBGRAPI	2015
VHAR Workshop@SIBGRAPI (Organizer)	2014
COMPSULMT	2013

## Supervisions

- Gabriel Bertocco. “Mining of people, objects and places of interest in heterogeneous sources of data”, 2021–Present. Ph.D. in Computer Science - Unicamp (co-supervisor). Scholarship: FAPESP.
- Rafael Soares Padilha. “Learning visual clues of the passage of time”, 2019–2022. Ph.D. in Computer Science - Unicamp (co-supervisor). Scholarship: FAPESP.
- Camila Moura. “CrowdPet: Automatic identification of animals in images”, 2019–2020. Technical training in Computer Science - SciPet. Scholarship: SciPet/FAPESP .
- Felipe Capiteli. “CrowdPet: Automatic identification of animals in images”, 2019–2020. Technical training in Computer Science - SciPet. Scholarship: SciPet/FAPESP.
- Giulianna Bosco. “CrowdPet: Automatic identification of animals in images”, 2018–2020. Technical training in Computer Science - SciPet. Scholarship: SciPet/FAPESP.
- Gabriel Bertocco. “CrowdPet: Automatic identification of animals in images”, 2019–2019. Undergraduate research in Computer Science - Unicamp. Scholarship: SciPet.
- Eduardo Rocha de Andrade. “CrowdPet: Automatic identification of animals in images”, 2018–2019. Technical training in Computer Science - SciPet. Scholarship: SciPet/FAPESP.
- Gabriel Bertocco. “Automatic age range estimation on mobile devices”, 2015–2018. Undergraduate research in Computer Science - Unicamp (co-supervisor). Scholarship: Motorola.
- Waldir Rodrigues de Almeida. “Data-driven face presentation-attack detection in mobile devices”, 2015–2018. Master in Computer Science - Unicamp (co-supervisor). Scholarship: Motorola.
- Rafael Soares Padilha. “Two-tiered facial verification for mobile devices”, 2015–2017. Master in Computer Science - Unicamp(co-supervisor). Scholarship: Motorola.
- Victor Gasparotto Capone. “CrowdPet: Computer Vision applied to the identification of lost animals”, 2017–2017. Undergraduate research in Computer Science - Unicamp. Scholarship: SciPet/FAPESP.
- Carlos Figueiredo. “CrowdPet: Computer Vision applied to the identification of lost animals”, 2017–2017. Undergraduate research in Computer Science - Unicamp. Scholarship: SciPet/FAPESP.
- João Gabriel Vasconcelos. “DESC - A tool for comparing image descriptors”, 2012–2012. Undergraduate research in Computer Engineering - IESB.

## Examining committee

- Rafael Soares Padilha. “Learning visual clues of the passage of time”, 2022. Ph.D. in Computer Science - Unicamp.
- Giuliano Roberto Pinheiro. “Detection and alignment of video sequences for event reconstruction”, 2019. Qualifying exam - Master in Computer Science - Unicamp.
- Pedro Ribeiro Mendes Júnior. “Open-set recognition for different classifiers”, 2018. Ph.D. in Computer Science - Unicamp.
- Jose Luis Flores Campana. “Comparative study of techniques for the detection and recognition of texts in multimedia objects”, 2018. Qualifying exam - Master in Computer Science - Unicamp.
- Luís Gustavo Lorgus Decker. “Comparative study of recommendation systems based on Deep Learning”, 2018. Qualifying exam - Master in Computer Science - Unicamp.
- Helena de Almeida Maia. “Multiple stream deep neural network for human action recognition”, 2018. Qualifying Exam - Ph.D. in Computer Science - Unicamp.
- Javier Alvaro Vargas Muñoz. “Clustering-based graphs for large scale approximate nearest neighbor search”, 2017. Qualifying exam - Ph.D. in Computer Science - Unicamp.
- Hilário Seibel Júnior. “Super-resolution in low-quality videos for forensics, surveillance, and mobile applications”, 2017. Ph.D. in Computer Science - Unicamp.
- João Paulo Pereira Martin. “Localization of sensitive content using temporal information and Deep Learning techniques”, 2017. Qualifying exam - Master in Computer Science - Unicamp.
- Geise Kelly da Silva Santos. “Continuous gait authentication techniques for mobile devices”, 2017. Master in Computer Science - Unicamp.
- Lucas Oliveira David, “Connoisseur: provenance analysis in paintings”, 2016. Qualifying exam - Master in Computer Science - Unicamp.
- Allan da Silva Pinto, “ Spoofing detection in biometric systems ”, 2016. Qualifying exam - Ph.D. in Computer Science - Unicamp.
- Manuel Alberto Córdova Neira, “Data fusion techniques for open set recognition problems”, 2015. Master in Computer Science - Unicamp.
- Felipe Souza Barros Damasceno, “Detection of ferromagnetic materials using multilayer perceptron RNA”, 2012. Major in Electrical Engineering - IESB.

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## TECHNICAL SKILLS

### Programming, scripting and markup languages

Python, C, C++, Java, Matlab, Bash, L<sup>A</sup>T<sub>E</sub>X

### Libraries and APIs

Tensorflow/Keras, Caffe Deep Learning Framework, Scikit-learn, OpenCV

### Tools

Docker, Git

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## LANGUAGES

### Portuguese

Native

### English

Professional proficiency