

Fernanda Alcântara Andaló, Ph.D.

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Fernanda A. Andaló is a Postdoctoral Researcher at the Institute of Computing, University of Campinas (Unicamp), Brazil, in collaboration with Motorola. She is also co-founder and CTO of SciPet. She received a B.Sc. in Computer Science from University of Brasília (UnB) in 2004, a M.Sc. in Computer Science from Unicamp in 2007, and a Ph.D. in Computer Science from the same university in 2012, during which she was a visiting researcher at the School of Engineering, Brown University, for a year. She was a postdoctoral researcher at VISGRAF Laboratory, National Institute of Pure and Applied Mathematics (IMPA) in 2013, and during 2014-2015 she worked at the Samsung Research Institute Brazil (SRBR) as a research scientist. Fernanda is an IEEE member and 2016-2017 Chair of the IEEE Women in Engineering (WIE) South Brazil Section. Her research interests include Computer Vision, Image Processing, and Computer Graphics.

CONTACT

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RESEARCH INTERESTS

RESEARCH AREA: Visual Computing

TOPICS: pattern recognition, biometrics, image descriptors, content-based image retrieval, 3D reconstruction, multiview stereo, optimization problems.

POSTDOCTORATE

SEP 2015 – PRESENT **University of Campinas (Unicamp)**, Campinas, SP, Brazil
In collaboration with MOTOROLA MOBILITY
PROJECT: “BioLive: Multi-feature and open-set authentication techniques for mobile devices”
SUPERVISOR: Prof. Dr. Anderson de R. Rocha

DEC 2012 – APR 2014 **National Institute for Pure and Applied Mathematics (IMPA)**, Rio de Janeiro, RJ, Brazil
PROJECT: “Texture synthesis for 3D surfaces”
SUPERVISOR: Prof. Dr. Luiz Velho

PROFESSIONAL EXPERIENCE

SEP 2016 – PRESENT **SciPet Innovative Technology Solutions**, Campinas, SP, Brazil
Co-founder and CTO
Current project: “CrowdPet: Computer Vision applied to the identification of lost animals”.

MAR 2017 – PRESENT **University of Campinas (Unicamp)**, Campinas, SP, Brazil
Lecturer in undergraduate courses:
Algorithms and Computer Programming.

APR 2014 – SEP 2015 **SAMSUNG Research Institute Brazil (SRBR)**, Campinas, SP, Brazil
Researcher in VISUAL COMPUTING.

AUG 2012 – DEC 2012 **Higher Education Institute of Brasília (IESB)**, Brasília, DF, Brazil
Lecturer in undergraduate courses:
Programming Logic and Image Processing.

- AUG 2005 – JUL 2009 **University of Campinas (Unicamp)**, Campinas, SP, Brazil
Teaching assistant in undergraduate courses:
Computer Programming and Data Structure.
- FEB 2003 – MAY 2005 **University of Brasília (UnB)**, Brasília, DF, Brazil
Undergraduate researcher and System analyst:
Projects on: the design and implementation of interactive and dynamical
3D interfaces for robot control over the Internet; the analysis
and development of a web system for art distance education.

EDUCATION

- MAR 2007 – NOV 2012 Ph.D. in COMPUTER SCIENCE,
University of Campinas (Unicamp), Campinas, SP, Brazil
PROJECT: “Computer vision methods applicable to Forensic Science”
ADVISOR: Prof. Dr. Siome K. Goldenstein
- DEC 2010 – DEC 2011 Visiting Ph.D. student
Brown University, Providence, RI, USA
PROJECT: “Computer vision methods applicable to Forensic Science”
ADVISOR: Prof. Dr. Gabriel Taubin
- MAR 2005 – MAR 2007 Master of COMPUTER SCIENCE
University of Campinas (Unicamp), Campinas, SP, Brazil
PROJECT: “Image descriptors based on Tensor Scale”
ADVISOR: Prof. Dr. Ricardo da S. Torres
CO-ADVISOR: Prof. Dr. Alexandre X. Falcão
- AUG 1999 – JUN 2004 Bachelor of COMPUTER SCIENCE
University of Brasília (UnB), Brasília, DF, Brazil
PROJECT: “Water simulation in a virtual world based on a Pieter Bruegel’s
painting”
ADVISOR: Prof. Dr. Aluizio Arcela

PUBLICATIONS

Journal articles

- F.A. ANDALÓ, G. CARNEIRO, G. TAUBIN, S. GOLDENSTEIN, L. VELHO, “Automatic reconstruction of ancient Portuguese tile panels”, *IEEE Computer Graphics and Applications (CG&A)*, To appear.
- 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](https://doi.org/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](https://doi.org/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](https://doi.org/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 Chronic Fluoride Doses”, *Brazilian Dental Journal (BDJ)* 21(1), pp. 32–37, 2010. [doi:10.1590/S0103-64402010000100005](https://doi.org/10.1590/S0103-64402010000100005)

Refereed Conferences and Workshops papers

- Z. BOULKENAFET,..., W.R. ALMEIDA, F.A. ANDALÓ, R. PADILHA, G. BERTOCCO, G. 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 '17)*, Denver, CO, USA, 2017.
- F.A. ANDALÓ, O.A.B. PENATTI, V. TESTONI, “Transmitting What Matters: Task-oriented video composition and compression”, In *XXIX Conference on Graphics, Patterns and Images (SIBGRAPI '16)*, São José dos Campos, Brazil, 2016.
- F.A. ANDALÓ, S. GOLDENSTEIN, “Computer Vision Methods Applicable to Forensic Science”, In *VII Workshop of Thesis and Dissertations, XXVI Conference on Graphics, Patterns, and Images (WTD/SIBGRAPI '13)*, pp. 136–144, Arequipa, Peru, 2013.
- F.A. ANDALÓ, G. TAUBIN, S. GOLDENSTEIN, “Solving Image Puzzles with a Simple Quadratic Formulation”, In *XXV Conference on Graphics, Patterns and Images (SIBGRAPI '12)*, Ouro Preto, MG, Brazil, 2012. doi:10.1109/SIBGRAPI.2012.18
- F.A. ANDALÓ, F. CALAKLI, G. TAUBIN, S. GOLDENSTEIN, “Accurate 3D Footwear Impression from Photographs”, In *4th International Conference on Imaging for Crime Detection and Prevention (ICDP '11)*, 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 projective plane for single-view photogrammetry”, In *IEEE Workshop on Information Forensics and Security (WIFS '10)*, Seattle, WA, USA, 2010. doi:10.1109/WIFS.2010.5711453
- F.A. ANDALÓ, G. TAUBIN, S. GOLDENSTEIN, “Vanishing Point Detection by Segment Clustering on Projective Space”, In *Workshop on Reconstruction and Modeling of Large-scale 3D Virtual Environments, 11th European Conference on Computer Vision (RMLE/ECCV '10)*, 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 *XXXV Seminário de Software e Hardware (SEMISH '08)*, Belém, PA, Brazil, 2008.
- F.A. ANDALÓ, R. DA S. TORRES, A.X. FALCÃO, “Shape descriptors based on Tensor Scale”, In *Workshop of Thesis and Dissertations, XXI Brazilian Symposium on Computer Graphics and Image Processing (WTDCGPI/SIBGRAPI '08)*, 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 *8th International Symposium on Mathematical Morphology (ISMM '07)*, 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 saliencies using Tensor Scale”, In *14th IEEE International Conference on Image Processing (ICIP '07)*, vol. 6, pp. 349–352, San Antonio, TX, USA, 2007. doi:10.1109/ICIP.2007.4379593

Short papers and abstracts

- D.B. CATANI, L.M.A. TENUTA, F.A. ANDALÓ, B.T. AMAECHI, J.A. CURY, “Comparison of different methods to evaluate dental fluorosis in rats”, In *89th General Session & Exhibition of the IADR*, San Diego, CA, USA, 2011. *Journal of Dental Research* 90, 2011.
- L.M.A. TENUTA, D.B. CATANI, F.A. ANDALÓ, J.A. CURY, “Development of a sensitive index to qualify fluorosis in rats”. In *88th General Session & Exhibition of the IADR*, Barcelona, Spain, 2011. *Journal of Dental Research* 89, 2010.
- D.B. CATANI, L.M.A. TENUTA, F.A. ANDALÓ, J.A. CURY, “Effect of oscillating fluoride doses on fluorosis development in rats”. In *57th Congress of the European Organization for Caries Research (ORCA '10)*, Montpellier, France, 2010. *Caries Research* 44, pp. 237–237, 2010.
- D.B. CATANI, L.M.A. TENUTA, F.A. ANDALÓ, J.A. CURY, “Um novo método para quantificação de fluorose dental em ratos”. In *27ª reunião anual da SBPqO*, Montpellier, Águas de Lindoia, SP, Brasil, 2010. *Brazilian Oral Research*, 2010.

- F.A. ANDALÓ, S. VENTURELLI, “Arte e Computação Gráfica: interface interativa e dinâmica para controle de robô via Internet”. In *10º Congresso de Iniciação Científica da UnB e 1º Congresso de Iniciação Científica do DF*, Brasília, DF, Brazil, 2004.
- F.A. ANDALÓ, S. VENTURELLI, “Interfaces interativas de controle de robôs via internet”. In *9º Congresso de Iniciação Científica da Universidade de Brasília*, Brasília, DF, Brazil, 2003.

Technical reports

- 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.

Patents

- 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”, [US20160275354A1](#), 2015. Patent pending.
- F.A. ANDALÓ, O.A.B. PENATTI, V. TESTONI, F.L. KOCH, “Sistema e método para composição e compressão com base em contexto a partir de objetos com resolução espacial normalizada”, BR1020150059299, 2015. Patent pending.
- F.A. ANDALÓ, O.A.B. PENATTI, F.L. KOCH, “Sistema e método para analisar dados multivariados extraídos de imagens capturadas em diferentes visões”, BR1020150059302, 2015. Patent pending.

HONOURS & AWARDS

- **FOURTH PLACE** in the Competition on generalized face presentation attack detection in mobile authentication scenarios, International Joint Conference on Biometrics (IJCB), 2017.
- **SECOND PLACE** in the Face Recognition Challenge, 13th 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 4th International Conference on Imaging for Crime Detection and Prevention (ICDP '11), 2011.
- **HONORABLE MENTION** for work presented at the 27th Annual Meeting of the SBPqO, 2010.
- **1ST 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 (SIBGRAP '08), 2008.
- Motorola Mobility Post-doctoral Scholarship, 2015-Present.
- 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.

ACADEMIC SERVICE

Journal reviewer

- Computer Vision and Image Understanding (CVIU)
- IEEE Transactions on Image Processing (TIP)

- Graphical Models (GMOD)
- Neurocomputing
- Computer Graphics Forum
- Journal of Communications and Information Systems (JCIS)
- Pattern Recognition (PR)
- IEEE Transaction on Information Forensics and Security (T-IFS)
- Digital Investigation
- Pattern Recognition Letters (PRL)
- Revista Brasileira de Criminalística (RBC)
- IEEE Transactions on Multimedia (MM)
- Journal of Visual Communication and Image Representation (JVCI)
- IEEE Signal Processing Letters (SPL)

Program committee

- 30th Conference on Graphics, Patterns and Images (SIBGRAPI), 2017.
- 2nd International Workshop on Multimedia Forensics and Security (MFSec), 2017.
- VI Congresso de Computação do Sul de Mato Grosso (COMPSULMAT), 2016.
- XXVIII Conference on Graphics, Patterns and Images (SIBGRAPI), 2015.
- Workshop on Vision-based Human Activity Recognition (WVHAR), XXVII Conference on Graphics, Patterns and Images (SIBGRAPI), 2014.
- V Congresso de Computação do Sul de Mato Grosso (COMPSULMAT), 2013.

Examining committee

- João Paulo Pereira Martin. “Localização de conteúdo sensível usando informações temporais e técnicas de Deep Learning”, 2017. Qualifying Exam - Master in Computer Science - Unicamp.
- Geise Kelly da Silva Santos. “Técnicas para autenticação contínua em dispositivos móveis a partir do modo de caminhar”, 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, “Técnicas de Combinação de Evidências para Problemas de Reconhecimento em Cenário Aberto”, 2015. Master in Computer Science - Unicamp.
- Felipe Souza Barros Damasceno, “Detecção de materiais ferromagnéticos através de RNA Perceptron Multicamadas”, 2012. Major in Electrical Engineering - IESB.

COMPUTER SKILLS

PROGRAMMING, SCRIPTING AND MARKUP LANGUAGES	C, C++, Python, Java, Matlab, PHP, Lua, SQL, \LaTeX , RenderMan Scene Description Language (RIB), POV-Ray Scene Description Language (SDL)
LIBRARIES AND APIS	OpenCV, Qt, Google Web Toolkit (GWT), Caffe Deep Learning Framework, scikit-learn, OpenGL
OPERATING SYSTEMS	Linux, FreeBSD

LANGUAGES

PORTUGUESE	Native
ENGLISH	Professional proficiency