

## **André L. F. de Almeida**

Department of Teleinformatics Engineering  
Federal University of Ceara, Fortaleza, Brazil

Av. Mister Hull s/n, Campus do Pici, B. 722  
CEP 60455-760 Fortaleza, CE, Brazil  
[andre@gtel.ufc.br](mailto:andre@gtel.ufc.br)

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### **BIO SKETCH**

André L. F. de Almeida is a Professor at the Teleinformatics Engineering Department of the Federal University of Ceara. He received a double Ph.D. degree in Sciences and Teleinformatics Engineering from the University of Côte D'Azur, France, and the Federal University of Ceara, Fortaleza, Brazil, in 2007. He was awarded multiple times visiting professor positions at the University of Côte D'Azur, France (2012-2013, 2015, 2018-2019, 2022-2024).

He has served as an Associate Editor for several journals, such as the IEEE Transactions on Signal Processing (2012-2014; 2014-2016), IEEE Signal Processing Letters (2016-2018; 2018-2020), and IEEE Transactions on Vehicular Technology (2020-2022). He is a Senior Area Editor for the IEEE Signal Processing Letters. Prof. Almeida is an elected member of the IEEE Signal Processing Society (SPS) Signal Processing Theory and Methods (SPTM) Technical Committee (2022-2024) and an elected member of the EURASIP Signal Processing for Multi-Sensor Systems Technical Area Committee (SPMuS TAC) (2016-2018 and 2019-2022), where he currently serves as the Vice-Chair. He also served on the IEEE SPS Sensor Array and Multichannel (SAM) Technical Committee for two terms (2015-2018 and 2018-2021). From 2022 to 2023, Prof. Almeida served as the IEEE SPS Director-at-Large for Regions 7 & 9. In 2024, he was elected as the Chief Editor for the IEEE SPS SigPort (2025-2027).

He was involved in the organization and chairing of several IEEE SPS conferences. In particular, he was a General Co-Chair of the 2017 IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP'2017), Technical Co-Chair of the IEEE GlobalSIP'2018 and IEEE GlobalSIP'2019 Symposia on Tensor Methods for Signal Processing and Machine Learning, Technical Co-Chair of the 11th IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM'2020), and General Co-Chair of the IEEE CAMSAP'2023. He is a level 1 research fellow of the CNPq (the Brazilian National Council for Scientific and Technological Development). In 2018, he was elected as a Member of the Brazilian Academy of Sciences.

Prof. Almeida is a co-recipient of the 2018 IET Communications Premium Best Paper Award (2018), Best Paper Award at the 19th IEEE International Conference on OFDM and Frequency Domain Techniques (2016), Best Paper Award at the Brazilian Symposium of Telecommunications and Signal Processing (2020, 2023), and the 2022 IET Signal Processing Premium Best Paper Award (2022). He has published over 250+ papers in journals and conferences, 6 book chapters, and is co-inventor of 7 international patents.

His research interests lie in signal processing for communications, sensor array and multichannel processing, and multilinear algebra, and wireless communication networks. An important part of his research has been devoted to multilinear algebra and tensor decompositions with applications to wireless communications.

## EDUCATION

- Ph.D, Sciences, University of Nice Sophia Antipolis, Nice, France, 2007.
- M.Sc., Teleinformatics Engineering, Federal University of Ceará, Fortaleza, Brazil, 2003.
- B.Sc., Electrical Engineering, Federal University of Ceará, Fortaleza, Brazil, 2001.

## PROFESSIONAL EXPERIENCE

- Professor, Teleinformatics Engineering, Federal University of Ceará (2010- present).
- Visiting Professor, University of Côte D'Azur, France (2012-2013, 2015, 2018-2019, 2022-2023).  
Research Fellow of the CNPq (a Brazilian National Research Council) (2010-present).
- Post-doctoral Research Associate, I3S Laboratory, CNRS, France (2008-2009).
- Teaching Assistant, Electronics, Polytechnic School of Nice Sophia Antipolis (2007 -2008).
- Ph.D, Sciences, University of Nice Sophia Antipolis, Nice, France (2003- 2007).
- M.Sc., Teleinformatics Engineering, Federal University of Ceara, Fortaleza, Brazil (2002-2003).
- Engineering intern, Ericsson Research, Stockholm, Sweden (2002).

## PROFESSIONAL SERVICE

### Editorial activities

- Senior Area Editor, IEEE Signal Processing Letters (2020- present)
- Associate Editor, IEEE Transactions on Vehicular Technology (2020 - 2022)
- Associate Editor, IEEE Signal Processing Letters (2016-2020)
- Associate Editor, IEEE Transactions on Signal Processing (2012- 2016)
- Associate Editor, Frontiers in Communications and Networks Journal (2021-present)
- Associate Editor, *Traitement du Signal* (2014-2018)
- Associate Editor, Circuits, Systems & Signal Processing (2012- 2018)
- Associate Editor, Wireless Communications and Mobile Computing (2018-2020)
- Associate Editor, KSII Transactions on Internet and Information Systems (2012- 2014)
- Lead Guest Editor, EURASIP Journal on Advances in Signal Processing, special issue "Recent advances in Tensor-Based Signal and Image Processing" (2014, 2022)
- Guest Editor, Wireless Communications and Mobile Computing, special issue "Applications of Tensor Models in Wireless Communications and Mobile Computing", 2018
- Lead Guest Editor, Wireless Communications and Mobile Computing, special issue "Broadband Wireless Access for Rural and Remote Areas" of the Wireless Communications and Mobile Computing, 2019
- Guest Editor, EURASIP Journal on Advances in Signal Processing, special issue " Sparse/Low-rank Tensor Signal Processing for Communication and Radar Systems", 2021
- Guest Editor, Frontiers in Communications and Networks, special issue "Machine Learning and Artificial Intelligence for 5G and Beyond Technologies", 2021

### Societies and Technical Committees Memberships

- IEEE SPS Director-at-Large, Regions 7 & 9 (2022-2023).
- Elected member of the IEEE Signal Processing Theory and Methods Technical Committee (SPTM-TC) (2021-2022)
- Elected member of the IEEE Sensor Array and Multichannel Technical Committee (SAM-TC) (2015-2018, 2018-2021)

- Vice-Chair of the EURASIP Signal Processing for Multi-Sensor Systems Technical Area Committee (SAT-SPMuS) (2022-2023)
- Elected member of the EURASIP Signal Processing for Multi-Sensor Systems Technical Area Committee (SAT-SPMuS) (2018-2021, 2022-2023)
- Associate member of the Big Data Special Interest Group (SIG) of IEEE SPS (2015-2018)
- IEEE Senior Member

### **Session Organizer and Chairing**

- General Co-chair of the Seventh IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2023), Costa Rica, December 2023.
- General Co-Chair of the IEEE Workshop on Communication Networks and Power System (WCNPS 2021), Brasilia, November 2021.
- Technical Co-Chair of the XXXIX Brazilian Symposium on Telecommunications and Signal Processing (SBrT 2021), Fortaleza, September 2021.
- Organizer of the special session “Tensor Signal and Information Processing” at ASILOMAR conference on Signals, Systems and Computer (ASILOMAR-SSC 2021)
- Technical Co-Chair of the IEEE Workshop on Sensor Array and Multichannel Processing (SAM 2020), Hangzhou, China, June 2020.
- Area Chair of the European Signal Processing Conference (EUSIPCO 2021), Dublin, Ireland, August 2021.
- Area Chair of the European Signal Processing Conference (EUSIPCO 2020), Amsterdam, The Netherlands, August 2020.
- Area Chair of the European Signal Processing Conference (EUSIPCO 2019), A Coruña, Spain, August 2019.
- Technical Co-Chair of the Symposium on "Tensor Methods for Signal Processing and Machine Learning" at IEEE GlobalSIP 2019
- Technical Co-Chair of the Symposium on "Tensor Methods for Signal Processing and Machine Learning" at IEEE GlobalSIP 2018
- Organizer of the special session “Tensor Models for Array Processing” at ASILOMAR conference on Signals, Systems and Computer (ASILOMAR-SSC 2019)
- Organizer of the special session “Tensor Based Signal and Information Processing” at ASILOMAR conference on Signals, Systems and Computer (ASILOMAR-SSC 2018)
- Co-organizer of the special session “Advanced Tensor Methods for Big Data Processing” at the European Signal Processing Conference (EUSIPCO 2017)
- General Co-chair of the Seventh IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2017), Curaçao
- Organizer and chair of the special session "Tensor signal processing" at the Ninth IEEE Sensor Array and Multichannel Processing Workshop (SAM 2016), Rio de Janeiro, Brazil, 2016.
- Organizer and chair of the special session "Massive MIMO systems" at the Sixth IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2015), Cancun, Mexico, 2015.
- Organizer and chair of the special session "Tensor-based signal processing" at the Sixth IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2015), Cancun, Mexico, 2015.
- Organizer and chair of the special session "Tensor-Based signal processing" at the Eight IEEE Sensor Array and Multichannel Processing Workshop (SAM 2014), La Coruña, Spain, 2014.

- Organizer and chair of the special session "Tensor-based methods for multi-sensor signal processing" at the Fifth IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2013), Saint Martin, 2013.

### Awards/Other

- 2019 IET Signal Processing Best Paper Award.
- 2018 IET Communications Premium Award.
- Best Paper Award at the 40<sup>th</sup> Brazilian Symposium of Telecommunications & Signal Processing, (SBrT 2023).
- Best Paper Award at IEEE WCNPS 2022.
- Best Paper Award at the 38<sup>th</sup> Brazilian Symposium of Telecommunications & Signal Processing, (SBrT 2021).
- Best Paper Award at the 19<sup>th</sup> IEEE International Conference on OFDM and Frequency Domain Techniques, August 2016.
- Elected Affiliate Member of the Brazilian Academy of Sciences (January 2018-present).
- Level-1D Research Fellow of the CNPq (Brazilian National Council for Scientific and Technological Development, Ministry of Science, Technology and Innovation).
- Reviewer for innumerable conferences (VTC 2006 Fall, ISWCS 2006, PIMRC 2006, 2007, VTC 2007 Spring, ISWCS 2007, VTC 2007 Fall, EUSIPCO 2008, SPAWC 2008, VTC 2008 Fall, VTC 2009 Spring, EUSIPCO 2009, EUSIPCO 2011, SSP 2011, EUSIPCO 2012, ISWCS 2012, FIE 2013, CAMSAP 2013, CAMSAP 2014, ICSPCS 2013, GLOBECOM 2013, SIRS 2014, ICSPCS 2014, SAM 2014, SAM 2016, ICASSP 2014, ICASSP 2015, ICASSP 2016, ICASSP 2017).

## SCIENTIFIC PRODUCTION

### Journal Papers

- [110] A. L. Magalhães, A. L. F. de Almeida, "Semi-Blind Receivers for Hybrid Reflecting and Sensing RIS," submitted, 2024.
- [109] Y. S. Ribeiro, B. Makki, A. L. F. de Almeida, F. Asim, G. Fodor, "Mobility Management in Integrated Sensing and Communications Networks," submitted, 2024.
- [108] S. Ahmadi, N. Rezaeian, C. F. Caiafa, A. L. F. de Almeida, "Efficient Algorithms for Low Tubal Rank Tensor Approximation with Applications to Image Compression, Super-Resolution, and Deep Learning," submitted, 2024.
- [107] A. L. F. de Almeida, B. Sokal, H. Li, B., Clerckx, "Channel Estimation for Beyond Diagonal RIS via Tensor Decomposition," submitted, 2024.
- [106] S. Ahmadi, A. L. F. de Almeida, "Randomized algorithms for Kronecker tensor decomposition and applications," submitted, 2024.
- [105] Y. Znyed, A. L. F. de Almeida, "A Stochastic Algorithm for the Paratuck-2 decomposition", submitted, 2024.
- [104] M. Dehghan, J. Henrique de M. Goulart, A. L. F. de Almeida, "Low-Rank Multilinear Filtering," *Digital Signal Processing*, vol. 153, pp. 104646, 2024.
- [103] Two-Dimensional Channel Parameter Estimation for IRS-Assisted Networks, submitted, 2024.

- [102] F. E. Asim, A. L. F. de Almeida, B. Sokal, B. Makki, G. Fodor, "Tensor-Based Channel Estimation for RIS-Assisted Communications in THz Channels," submitted, 2023.
- [101] Y. S. Ribeiro, A. L. F. de Almeida, F. E. Asim, B. Makki, G. Fodor, "Low-Complexity Joint Active and Passive Beamforming Design for IRS-Assisted MIMO", *IEEE Wireless Communications Letters*, vol. 13, no. 3, pp. 607-611, 2024.
- [100] K. B. Benício, A. L. F. de Almeida, B. Sokal, F. E. Asim, B. Makki, G. Fodor, "Tensor-Based Channel Estimation and Data-Aided Tracking in IRS-Assisted MIMO Systems" *IEEE Wireless Communications Letters*, vol. 13, no. 2, pp. 333-337, 2024.
- [99] B. Sokal, P. R. B. Gomes, A. L. F. de Almeida, B. Makki, G. Fodor, "Reducing the Control Overhead of Intelligent Reconfigurable Surfaces Via a Tensor-Based Low-Rank Factorization Approach", *IEEE Transactions on Wireless Communications*, vol. 22, no. 10, pp. 6578-6593, Oct. 2023.
- [98] M. Giraud, V. Itier, R. Boyer, Y. Znyed, A. L. F. de Almeida, "Tucker Decomposition Based on a Tensor Train of Coupled and Constrained CP Cores", *IEEE Signal Processing Letters*, vol. 30, pp. 758-762, 2023.
- [97] G. T. Araújo, A. L. F. de Almeida, R. Boyer, "Semi-Blind Joint Channel and Symbol Estimation for Intelligent Surface Assisted MIMO Systems", in *IEEE Transactions on Signal Processing*, vol. 71, pp. 1184-1199, 2023.
- [96] H. Zheng, C. Zhou, Z. Shi, A. L. F. de Almeida, Y. Gu, "Coarray Tensor Completion for DOA Estimation", in *IEEE Transactions on Aerospace and Electronic Systems*, vol. 59, no. 5, pp. 5472-5486, Oct. 2023.
- [95] M. F. K. B. Couras, P. H. U. de Pinho, G. Favier, V. Zarzoso, A. L. F. de Almeida, J. P. J. da Costa, "Semi-Blind Receivers Based on a Coupled Nested Tucker-PARAFAC Model for Dual-Polarized MIMO Systems using Combined TST and MSMKron Codings", *Digital Signal Processing*, vol. 137, no. 15, June 2023.
- [94] P. R. B. Gomes, G. T. Araújo, A. L. F. de Almeida, B. Makki, G. Fodor, "Channel Estimation in RIS-Assisted MIMO Systems Operating Under Imperfections", *IEEE Transactions on Vehicular Technology*, doi: 10.1109/TVT.2023.327980, 2023.
- [93] Fazal-E-Asim, F. Antreich, C. C. Cavalcante, A. L. F. de Almeida, J. A. Nossek, "Efficient Hybrid A/D Beamforming for Millimeter-Wave Systems Using Butler Matrices", in *IEEE Transactions on Wireless Communications*, vol. 22, no. 2, pp. 1001-1013, Feb. 2023.
- [92] P. H. U. de Pinho, M. F. K. B. Couras, G. Favier, A. L. F. de Almeida, J. P. J. da Costa, "Semi-Blind Receivers for Two-Hop MIMO Relay Systems with a Combined TSTF-MSMKron Coding", *Sensors*, vol. 23, no. 13, doi.org/10.3390/s23135963, 2023.
- [91] L. Khamidullina, A. L. F. de Almeida, M. Haardt, "Multilinear Generalized Singular Value Decomposition (ML-GSVD) and its Application to Multiuser MIMO Systems. *IEEE Transactions on Signal Processing*, vol. 70, pp. 2783-2797, 2022.
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- [89] G. T. Araújo, A. L. F. de Almeida, B. Makki, G. Fodor, "Semi-Blind Joint Channel and Symbol Estimation in IRS-Assisted Multiuser MIMO Networks, *IEEE Wireless Communications Letters*, vol. 11, pp. 1553-1557, 2022.
- [88] R. P. Antonioli, I. M. Braga Jr., G. Fodor, Y. C. B. Silva, A. L. F. de Almeida, W. C. Freitas Jr, "On the Energy Efficiency of Cell-Free Systems with Limited Fronthauls: Is Coherent Transmission Always the Best Alternative", in *IEEE Transactions on Wireless Communications*, vol. 21, no. 10, pp. 8729-8743, Oct. 2022.

- [87] C. Enneking, F. Antreich, A. L. F. de Almeida, "Randomized Spectral Separation Coefficient for Short Code Acquisition Performance Evaluation", *IEEE Transactions on Aerospace and Electronic Systems*, vol. 58, no. 3, pp. 1593-1608, June 2022.
- [86] Fazal-E-Asim, A. L. F. de Almeida, F. Antreich, M. Haardt, C. C. Cavalcante, "Kronecker Product Based Space-Time Block Codes", *IEEE Wireless Communications Letters*, vol. 11, no. 2, pp. 386-390, 2022.
- [85] B. Sokal, K. Naskovska, A. L. F. de Almeida, M. Haardt, "Using tensor contractions to derive the structure of slice-wise multiplications of tensors with applications to semi-blind MIMO OFDM systems", *EURASIP Journal on Advances in Signal Processing*, vol. 2022, pp. 1-26, 2022.
- [84] F. H. Costa Neto, D. C. Araújo, M. P. Mota, T. F. Maciel and A. L. F. de Almeida, "Uplink Power Control Framework Based on Reinforcement Learning for 5G Networks," in *IEEE Transactions on Vehicular Technology*, vol. 70, no. 6, pp. 5734-5748, June 2021.
- [83] K. Ardah, S. Gherekhloo, A. L. F. de Almeida and M. Haardt, "TRICE: A Channel Estimation Framework for RIS-Aided Millimeter-Wave MIMO Systems," in *IEEE Signal Processing Letters*, vol. 28, pp. 513-517, 2021.
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- [79] B. Sokal, P. R. B. Gomes, A. L. F. de Almeida and M. Haardt, "Tensor-Based Receiver for Joint Channel, Data, and Phase-Noise Estimation in MIMO-OFDM Systems," in *IEEE Journal of Selected Topics in Signal Processing*, vol. 15, no. 3, pp. 803-815, April 2021.
- [78] Fazal-E-Asim, F. Antreich, C. C. Cavalcante, A. L. F. de Almeida and J. A. Nossek, "Two-Dimensional Channel Parameter Estimation for Millimeter-Wave Systems Using Butler Matrices," in *IEEE Transactions on Wireless Communications*, vol. 20, no. 4, pp. 2670-2684, April 2021.
- [77] Han Xi, A. L. F. de Almeida, W. C. Freitas Jr., Yingchun Zhou, "A Semiblind Uni-ALS Receiver for a Two-Way MIMO Relaying System Based on the PARATUCK2 Model", *Digital Signal Processing*, vol. 110, March 2021, 102916.
- [76] A. M. Pessoa, B. Sokal, C. F. M. Silva, T. F. Maciel, A. L. F. de Almeida, F. R. P. Cavalcanti, "A CDL-based Channel Model with Dual-Polarized Antennas for 5G MIMO Systems in Rural Remote Areas", *IEEE Access*, vol. 8, pp. 163366-163379, 2020.
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- [73] Y. Znyed, R. Boyer, A. L. F. de Almeida, G. Favier, "Tensor train representation of massive MIMO channels using the joint dimensionality reduction and factor retrieval (JIRAFE) method", *Signal Processing*, vol. 171, June 2020.
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- [71] Y. Znyed, R. Boyer, A.L.F. de Almeida, G. Favier, "High-order tensor factorization via trains of coupled third-order CP and Tucker decompositions", *Linear Algebra and its Applications*, vol. 588, no. 1, pp.304-337, March 2020.
- [70] C. C. R. Garcez, D. V. de Lima, R. K. Miranda, F. L. L. de Mendonça, J. P. C. L. da Costa, A. L. F. de Almeida, R. T. de Sousa Jr., "Tensor-based subspace tracking for time-delay estimation in GNSS", *Sensors*, vol. 19, no. 23, Dec. 2019, pp. 5076.
- [69] L. N. Ribeiro, S. Schwarz, A. L. F. de Almeida, "Double-sided massive MIMO transceivers for mmWave communications", *IEEE Access*, vol. 7, pp. 157667-157679, 2019.
- [68] K. Ardah, G. Fodor, Y. C. B Silva, W. C. Freitas Jr., A. L. F. de Almeida, "Hybrid analog-digital beamforming design for SE and EE maximization in massive MIMO networks", *IEEE Transactions on Vehicular Technology*, vol. 69, no. 1, pp. 377-389, Jan. 2020.
- [67] W. C. Freitas Jr., G. Favier, A. L. F. de Almeida, "Tensor-based joint channel and symbol estimation for two-way MIMO relaying systems", *IEEE Signal Processing Letters*, vol. 26, p. 227-231, 2019.
- [66] L. N. Ribeiro, A. L. F. de Almeida, J. C. M. MOTA, "Separable linearly constrained minimum variance beamformers", *Signal Processing*, vol. 158, pp. 15-25, 2019.
- [65] P. R. B. Gomes, J. P. C. L. da Costa, A. L. F. de Almeida, "Tensor-based multiple denoising via successive spatial smoothing, low-rank approximation and reconstruction for R-D sensor array processing", *Digital Signal Processing*, vol. 89, pp. 1-7, 2019.
- [64] L. N. Ribeiro, A. L. F. de Almeida, J. A. Nossek, J. C. M. Mota, "Low-complexity separable beamformers for massive antenna array systems", *IET Signal Processing*, vol. 13, pp. 434-442, 2019.
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- [55] W. C. Freitas Jr., G. Favier, A. L. F. de Almeida, "Generalized Khatri-Rao and Kronecker space-time coding for MIMO relay systems with closed-form semi-blind receivers", *Signal Processing*, vol. 151, pp. 19-31, 2018.
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