

Curriculum vitae



1 Current position

Name **Lotfi CHAARI**

Institution Higher institute of computer science and multimedia of Sfax, Tunisia

Position Professor

Research MIRACL laboratory
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2 Diploma

2017 Post-doctoral dissertation (Habilitation), signal and image processing, University of Toulouse, France

2010 PhD in signal and image processing, University of Paris-Est Marne-la-Vallée, France

2008 Master of science, Télécommunications, SUP'COM, Tunisia

2007 Engineer degree, Télécommunications, SUP'COM, Tunisia

3 Professional experience

2012 - 2018 Associate professor, University of Toulouse, France

2010 - 2012 Post-doctoral fellow, INRIA Grenoble-Rhône Alpes, France

4 Research interests

Medical imaging, Diagnosis aid, Artificial intelligence, Machine learning, Big data

5 Scientific animation

5.1 Reviewing

Journals IEEE Journal of Selected Topics in Signal Processing, IEEE Signal Processing Letters, Journal of Signal Image and Video Processing, IEEE Transactions on Signal Processing, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, Journal of the Optical Society of America, EURASIP Journal on Advances in Signal Processing, Signal Processing Journal, Frontiers in Neuroinformatics, International Journal of Computer Assisted Radiology and Surgery

Conferences IEEE ICIP, IEEE ICASSP, EUSIPCO, IEEE ICABME, IEEE MECBME, IEEE ISBI, MICCAI, GretsI, ISIVC, ESBM

5.2 Technical program committees

- TPC for the international conferences EUSIPCO 2014, WCCS 2014, EUSIPCO 2017, ESBM 2017, AICCSA 2017, EUSIPCO 2018.
- Track chair for the international conference MECBME 2018 (T8 - Translational Engineering and Healthcare Innovation).
- Founder and General Chair of the first international conference on digital health technologies (2018).

5.3 Expertise

Evaluation expert for the national research agency in France : 2011, 2014, 2017 and 2018.

5.4 Main projects

- **DynBrain** :Reconstruction of Brain Dynamic EEG images (2012 - 2013)
Funding : 22 253 €- STIC - AmSud Program
Partners : IRIT-INPT, Univ. Sanata Catarina - Brazil, ITBA- Buenos Aires
- **OPTIMISME** : Design of a new generation of parallel algorithms using stochastic optimization for big data processing (2015-2016) Funding : 45 000 €- CNRS
Partners : LIGM, LJLL, IRIT, Laboratoire de Physique de l'ENS de Lyon, INT, I2M
- **Telemetry analysis for diagnosis** : analysing telemetry data for anomaly detection in satellites (2014-2015)
Funding : 50 000 €- CNES (# 141531, R &T14 : BS-0003-048)
Partners : IRIT, CNES, University of Nice Sophia Antipolis (Lab. J.L. Lagrange)
- **Analysing multi-temporal images using joint detection-estimation** : 2015-2016
Funding : 50 000 €- CNES (# 0010105785, R & T : R-S14-OT-0004-075)
Partners : IRIT, CNES
- **BioHypoxia** : Analysing EEG and ECG signals for predicting hypoxia (2018-2019)
Funding : 10 000 TDN - Higher education and scientific research ministry.
- **Southern tele-perinatal network** : telemedicine solutions for prevention and adaptive care in a maternity network of the tunisian south (2019-2021)
Funding (3 060 000 TDN) : Health ministry and french development agency.
Partners : Hedi Chaker hospital, digital research centre of Sfax, Faculty of medicine of Sfax

6 Sample of publications

6.1 Patents

1. Lotfi Chaari, Jean-Christophe Pesquet, Sébastien Mériaux and Philippe Ciuciu, “Method for performing parallel magnetic resonance imaging”, March 2012, PCT/IB2011/002330 (<http://patent.ipexl.com/W0/2012ZZSLASHZZ028955.html>).
2. Sylvain Fuertes, Gilles Picart, Lotfi Chaari, André Ferrari, Cédric Richard, Jean-Yves Tourneret. ”Automatic detection of atypical behaviors”, PCT/EP2016080535.

6.2 Journal papers :

1. Lotfi Chaari, Jean-Christophe Pesquet, Amel Benazza-Benyahia and Philippe Ciuciu, “A wavelet-based regularized reconstruction algorithm for SENSE parallel MRI with applications to neuroimaging”, *Medical Image Analysis*, vol. 15, no. 2, pp. 185-201, April, 2011.
2. Lotfi Chaari, Thomas Vincent, Florence Forbes, Michel Dojat and Philippe Ciuciu, “Fast joint detection estimation of brain activity in fMRI using a variational approach”, *IEEE Trans. on Medical Imaging*, vol. 32, no. 5, pp. 821-837, May 2013.
3. Lotfi Chaari, Philippe Ciuciu, Sébastien Mériaux and Jean-Christophe Pesquet, “Spatio-temporal wavelet regularization for parallel MRI reconstruction : application to functional MRI”, *Magnetic Resonance Materials in Physics, Biology and Medicine (MAGMA)*, vol. 27, n° 6, pp. 509-529.

4. Thomas Vincent, Solveig Badillo, Laurent Risser, Lotfi Chaari, Christine Bakhous, Florence Forbes and Philippe Ciuciu, "Flexible multivariate hemodynamics fMRI data analyses and simulations with PyHRF", *Frontiers in Neuroinformatics*, vol. 8, no. 67, 2014.
5. Facundo Costa, Hadj Batatia, Lotfi Chaari, Jean-Yves Tournet, "Sparse EEG Source Localization using Bernoulli Laplacian Priors", *IEEE Trans. Biomedical Engineering*, vol. 62, n° 12, pp. 2888-2898, 2015.
6. Andrea Laruelo, Lotfi Chaari, Jean-Yves Tournet, Hadj Batatia, Solea Ken, Ben Rowland, Régis Ferrand, Anne Laprie, "Spectral-spatial regularization to improve MRSI quantification", *NMR in Biomedicine*, vol. 29, n° 7, pp. 918-931, 2016.
7. Mohanad Albughdadi, Lotfi Chaari, Jean-Yves Tournet, Florence Forbes, Philippe Ciuciu, "Hemodynamic Brain Parcellation Using A Non-Parametric Bayesian Approach", *Signal Processing*, vol 135, pp. 132-146, 2017.

6.3 Conference papers :

1. Bassem Bouaziz, Lotfi Chaari, Hadj Batatia and Antonio Quintero-Rincon, "Epileptic seizure detection using a Convolutional Neural Network", International Conference on Digital Health Technologies, October 15-16, Sfax, Tunisia 2018.
2. Itebeddine Ghorbel, Walma Gharbi, Lotfi Chaari and Amel Benazza, "Bayesian compressed sensing for IoT : application to EEG recording", International Conference on Digital Health Technologies, October 15-16, Sfax, Tunisia 2018.
3. Mohamed Fakhfakh, Nizar Fakhfakh, and Lotfi Chaari, "Robust lane Extraction using Two-Dimension Declivity", International Conference on Artificial Intelligence and Soft Computing, pp 14-24, Zakopane, Poland, June 3-7, 2018.
4. Siwar Chaabene, Lotfi Chaari and Abdelaziz Kallel, "Sparse Bayesian pMRI Reconstruction With Complex Bernoulli-Laplace Mixture Priors", IEEE Middle East Conference on Biomedical Engineering (MECBME), Tunis, Tunisia, March 28-30, 2018.
5. Mohanad Albughdadi, Lotfi Chaari and Jean-Yves Tournet, "A hybrid inter and intra subject model for fMRI analysis", IEEE Middle East Conference on Biomedical Engineering (MECBME), Tunis, Tunisia, March 28-30, 2018.
6. Mariem Mekki, Itebeddine Ghorbel, Nebras Gharbi, Lotfi Chaari, "A decision support system for high computing architectures for complex medical imaging algorithms", *Engineering Sciences for Biology and Medicine (ESBM 2017)*, Sfax, Tunisia, May 4-7, 2017.
7. Mohanad Albughdadi, Lotfi Chaari, Jean-Yves Tournet, "Adaptive Mean Shift Based Hemodynamic Brain Parcellation in fMRI". *Medical Imaging and Augmented Reality (MIAR)*, Bern, Swidzerland, August 24-26, 2016.
8. Andrea Laruelo, Lotfi Chaari, Solea Ken, Jean-Yves Tournet, Hadj Batatia, Anne Laprie, "MRSI data unmixing using spatial and spectral priors in transformed domains". *IEEE International Symposium on Biomedical Imaging (ISBI)*, Prague, Czech Republic, April 2016.
9. Mohanad Albughdadi, Lotfi Chaari, Florence Forbes, Jean-Yves Tournet, Philippe Ciuciu, "Multi-subject joint parcellation detection estimation in functional MRI". *IEEE International Symposium on Biomedical Imaging (ISBI)*, Prague, Czech Republic, April 2016.
10. Lotfi Chaari, Hadj Batatia and Jean-Yves Tournet, "Sparse Bayesian Image Restoration with Linear Operator Uncertainties with Application to EEG Signal Recovery", *In Middle East Conference on Biomedical Engineering (MECBME)*, Doha, Qatar, February 17-20 2014.
11. Andrea Laruelo, Lotfi Chaari, Hadj Batatia, Soleakhena Ken, Ben Rowland, Jean-Yves Tournet and Anne Laprie, "Hybrid Sparse Regularization for Magnetic Resonance Spectroscopy" *IEEE Engineering in Medicine and Biology Conference (EMBC)*, Osaka, Japan, July 3-7, 2013.
12. Lotfi Chaari, Florence Forbes, Thomas Vincent and Philippe Ciuciu, "Adaptive hemodynamic-informed parcellation of fMRI data in a variational Joint Detection Estimation framework", *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, Vol. 7512, p. 180-188, 2012.