2023

Articles in international peer-reviewed journals

- • S. K. Maji and H. Yahia
  *Image Denoising in Fluorescence Microscopy using Feature based Gradient Reconstruction*
  SPIE Journal of Medical Imaging, 2023. (accepted)

Book chapter

- • M. Kumar, S. K. Maji and H. Yahia
  *3D Volumetric Computed Tomography from 2D X-rays: A Deep Learning Perspective Handbook of AI-Based Models in Healthcare and Medicine, CRC Press, Taylor and Francis Ed: Chander, Guravaiah, B., Kumaravelan (in press)*

- • Jayaramu H K, S. K. Maji and H. Yahia

2022

Articles in international peer-reviewed journals

- • N. Brodul, J.-P. Crutchfield
  HAL

- • K. Daoudi, B. Das, T. Tykalová, J. Klempir, J. Rusz
  *Speech acoustic indices for differential diagnosis between Parkinson’s disease, multiple system atrophy and progressive supranuclear palsy Nature.com, npj Parkinson's Disease.* 
  HAL
International peer-reviewed conferences

- • K. Daoudi et. al.
  A comparative study on vowel articulation in Parkinson's disease and multiple system atrophy
  Interspeech 2022.  [HAL](#).

PhD thesis

- • A. Rashidi
  Méthodes avancées en super-résolution pour les images numérisées de haute qualité
  defended March 29th, 2022.  [HAL](#).

2021

PhD thesis

- • B. Das
  Automated objective speech markers for differential diagnosis between parkinson's disease and atypical parkinsonian disorders
  defended September 30th, 2021.  [HAL](#).

HDR

- • N. Brodu
  Systèmes complexes : inférence, dynamique et applications, Habilitation à diriger des recherches, Université de Bordeaux, June 2021
  defended in June 2021.  [HAL](#).

- • K. Daoudi
  Novel paradigms in the processing of speech and its disorders, Habilitation à diriger des recherches, Université de Bordeaux, March 2021
  defended in June 2021.  [HAL](#).
Articles in international peer-reviewed journals

- • H. Aetesam, S. Kumar Maji, H. Yahia
  Bayesian approach in a learning-based hyperspectral image denoising framework
  IEEE Access (open access)  [HAL].

- • H. Yahia et. al.
  Description of turbulent dynamics in the interstellar medium:
  multifractal/microcanonical analysis I. Application to  Herschel observations of the
  Musca filament
  Astronomy & Astrophysics  [HAL].  [Arxiv].

International peer-reviewed conferences

- • A. Rashidi et. al.
  Fast image deconvolution for enhancement of the resolution in the video rate
  terahertz imaging
  46th International Conference on Infrared, Millimeter, and Terahertz Waves, Oral
  presentation  [HAL].

- • K. Daoudi, B. Das et. al.
  Distortion of voiced obstruents for differential diagnosis between parkinson’s
  disease and multiple system atrophy
  Interspeech 2021.  [HAL].

2020

Articles in international peer-reviewed journals

- • N. Brodu, J. Crutchfield
  Discovering Causal Structure with Reproducing-Kernel Hilbert Space ε-Machines
  Submitted  [Arxiv].

- • L. Bonne et. al.
  Formation of the Musca filament: evidence for asymmetries in the accretion flow due
  to a cloud-cloud collision
  Astronomy & Astrophysics  [HAL].

- • G. Phartiyal, N. Brodu, D. Singh, H. Yahia, K. Daoudi
Permuted Spectral and Permuted Spectral-Spatial CNN Models for PolSAR-Multispectral Data based Land Cover Classification
IJRS  
- A. El Aouni et. al.
Robust Detection of the North-West African Upwelling From SST Images
IEEE Geoscience & Remote Sensing Letters  
- J. Barès, N. Brodu, H. Zheng, J. A. Dijksman
Transparent experiments: releasing data from mechanical tests on three dimensional hydrogel sphere packings
Granular Matter, Springer Verlag, 2020, 22 (1), pp.21  
- S. K. Maji, R. K. Thakur, H. Yahia
Structure-preserving denoising of SAR images using multifractal feature analysis
IEEE Geoscience & Remote Sensing letters, 2020,  
Defining Lagrangian coherent vortices from their trajectories
Physics of Fluids, American Institute of Physics, 2020,  

EGU Assembly

- F. Schmitt, H. Yahia, J. Sudre, V. Garçon, G. Charria, B. Dewitte
Scaling and anisotropic heterogeneities of ocean SST images from satellite data
EGU 2020 Session NP2.1 "Nonlinear Multiscale and Stochastic Dynamics of the Earth System"  
- G. Charria, S. Theetten, A. Ayouche, C. Poppeschi, J. Sudre, H. Yahia, V. Garçon
Multi-scale coastal surface temperature in the Bay of Biscay and the English Channel
EGU 2020 Session NP2.1 "Nonlinear Multiscale and Stochastic Dynamics of the Earth System"  

PhD thesis

- A. El Aouni
Lagrangian coherent structures and physical processes of coastal upwelling
defended September 24, 2019.  "Prix de thèse Systèmes complexes" CNRS
ISC-PIF 2020 !

- G. Singh
  Development of deep learning approaches to extract information from satellite images

Invited communications

- H. Yahia et. al.
  Description of turbulent dynamics in the interstellar medium:
  multifractal/microcanonical analysis
  sftools-bigdata : The close structural connection between gas and young stars, focus on current and new tools of data analysis 27-30 Oct 2020 Grenoble (France) HAL .

2019

Articles in international peer-reviewed journals

  Physical and Biological Satellite Observations of the Northwest African Upwelling:
  Spatial Extent and Dynamics

A Fourier approach to Lagrangian vortex detection
Chaos, American Institute of Physics, 29, 093106.  [Link to Chaos]  [HAL]
- S. K. Maji, H. Yahia
A Feature based Reconstruction Model for Fluorescence Microscopy Image Denoising
Scientific Reports, Nature Publishing Group, 2019, 9 (1).  [Link to Nature Scientific Reports]  [HAL]
- G. Attuel, E. Gerasimova, F. Argoul, H. Yahia and A. Arnéodo
Multifractal desynchronization of the cardiac excitable cell network during atrial fibrillation. II. Modeling
Frontiers in Physiology.  [Link to Frontiers in Physiology article]  [HAL]
- A. El Aouni, K. Daoudi, H. Yahia, K. Minaoui, A. Benazzouz
Surface mixing and biological activity in the North-West African upwelling
Chaos, American Institute of Physics, 29 (1), pp 0111042018, 2019.  [HAL]

International peer-reviewed conferences

- A. El Aouni et. al.
The contribution and influence of coherent mesoscale eddies off the North-West African Upwelling on the open ocean
SIAM Conference on Mathematics of Planet Earth (MPE18).  [HAL]

Summer Institute on Network Physiology

- G. Attuel, H. Yahia
The fall of the reentry paradigm of cardiac fibrillation
Second international Summer Institute on Network Physiology.  [Link to ISINP]  [HAL]

2018

Articles in international peer-reviewed journals
- • H. Yahia, V. Garçon, J. Sudre, C. Maes
   Effect of wind stress forcing on ocean dynamics at air-sea interface
   Frontiers of Information Technology & Electronic Engineering, 2018.  [HAL](#).

- • A. Tamim et al.
   Automatic Detection of Moroccan Coastal Upwelling Zones using Sea Surface Temperature Images

- • I. Hernandez-Carrasco, V. Garçon, J. Sudre, C. Garbe, H. Yahia
   Increasing the Resolution of Ocean pCO₂ Maps in the South Eastern Atlantic Ocean Merging Multifractal Satellite-Derived Ocean Variables

International peer-reviewed conferences

- • N. Brodu
   Low-rankness transfer for denoising Sentinel-1 SAR images
   ISIVC’2018 - 9th International Symposium on Signal, Image, Video and Communications, Nov 2018 .  [HAL](#).

   Search for filamentary accretion through low velocity shocks
   2018 Science for the Atacama Pathfinder Experiment (APEX).  [HAL](#).

- • A. El Aouni, K. Daoudi, H. Yahia, K. Minaoui
   Coherent Vortex Detection from Particles Trajectories Analysis
   2018 SIAM Conference on Nonlinear Waves and Coherent Structures.  [HAL](#).

- • A. El Aouni, K. Daoudi, H. Yahia, K. Minaoui
   Surface Mixing and Biological Activity in The North African Upwelling
   AGU Ocean Sciences Meeting 2018.  [HAL](#).

- • G. S. Phartiyal, N. Brodu, D. Singh, H. Yahia
   A mixed spectral and spatial Convolutional Neural Network for Land Cover Classification using SAR and Optical data
   EGU General Assembly, Vienna, 2018.  [HAL](#).

- • G. Li, K. Daoudi, J. Klempir, J. Rusz
   Linear classification in speech-based objective differential diagnosis of Parkinsonism
ICASSP’2018.  [HAL](#).

2017

Articles in international peer-reviewed journals

- • J. A. Dijksman, N. Brodu, R. Behringer
  *Refractive index matched scanning and detection of soft particles*
  Review of Scientific Instruments, American Institute of Physics.  [HAL](#).

- • G. Attuel et al.
  *Multifractal desynchronization of the cardiac excitable cell network during atrial fibrillation. I. Multifractal analysis of clinical data*
  Frontiers in Physiology.  [Link to Frontiers in Physiology article](#)  [HAL](#).

- • N. Brodu
  *Super-resolving multiresolution images with band-independant geometry of multispectral pixels*

- • F. Frappart, L. Bourrel, N. Brodu, X. Salazar, F. Baup, J. Darrozès, R. Pombosa
  *Monitoring of the Spatio-Temporal Dynamics of the Floods in the Guayas Watershed (Ecuadorian Pacific Coast) Using Global Monitoring ENVISAT ASAR Images and Rainfall Data*

- • O. Yelekçi et al.
  *Spatial and Seasonal Distributions of Frontal Activity over the French Continental Shelf in the Bay of Biscay*
  Continental Shelf Research, Elsevier, 2017.  [HAL](#).

International peer-reviewed conferences

- • V. J.-L. Ralaiaresoa, A. Valance, N. Brodu, R. Delannay
  *High speed confined granular flows down inclined: numerical simulations*
  EPJ Web of Conferences, 2017.  [HAL](#).

- • A. El Aouni et al.
Surface Mixing and Biological Activity in The North African Upwelling
AGU Ocean Sciences Meeting 2018, Feb 2018, Portland, USA. [HAL] •

- G. Attuel, H. Yahia
  Cardiac arrhythmias and Griffiths phase: desynchronization of excitable cells
  STATPHYS 26. [HAL] •

- J. Sudre, H. Yahia, C. Maes, V. Garçon,
  Effect of wind stress forcing on ocean dynamics at Air-Sea Interface
  SOLAS Conference, 15-18 May 2017, Cargese. [HAL] •

2016

Book chapter

- G. Attuel, O. Pont, B. Xu, H. Yahia
  Sudden Cardiac Death and Turbulence
  in Ferdinand Verhulst & Christos H. Skiadas Eds. The Foundations of Chaos
  Revisited: From Poincaré to Recent Advancements , Springer, 2016. [HAL] •

Articles in international peer-reviewed journals

- H. Badri, H. Yahia
  A Non-Local Low-Rank Approach to Enforce Integrability
  IEEE Transactions on Image Processing , 2016. [HAL] •

- H. Badri, H. Yahia, D. Aboutajdine
  Low-Rankness Transfer for Realistic Denoising
  IEEE Transactions on Image Processing, 2016. [HAL] •

- S. Kumar Maji, H. Yahia, T. Fusco
  A Multifractal-based Wavefront Phase Estimation Technique for Ground-based
  Astronomical Observations
A novel approach for optimal weight factor of DT-CWT coefficients for land cover classification using MODIS data
Geoscience and Remote Sensing Symposium (IGARSS), 2016 IEEE International, Beijing, China

Complexity in Electrophysiological Dynamics. Emergence and measures of organization
2nd BCAM Workshop on Nonlinear Dynamics in Biological Systems, September 2016, Bilbao, Spain

An improved method for accurate computation of coastal upwelling index using Sea Surface Temperature Images
AICCSA 2016

Detection of Moroccan coastal upwelling using sea surface chlorophyll concentration
AICCSA 2015

A sub-pixel resolution enhancement model for multiple-resolution multispectral images
European Geophysical Union General Assembly 2016, Apr 2016, Vienne, Austria.

Land cover in the Guayas Basin using SAR images from low resolution ASAR Global mode to high resolution Sentinel-1 images
European Geophysical Union General Assembly 2016, Apr 2016, Vienne, Austria.

Caractérisation de la Réponse Ultrasonore d’Implant Dentaire : Simulation Numérique et Analyse des Signaux
Congrès Français d’Acoustique 2016, Le Mans

Degree of Parkinson’s Disease Severity Estimation Based on Speech Signal Processing
IEEE 39th International Conference on Telecommunications and Signal Processing,
Jun 2016, Vienna, Austria  . HAL .

- •K. Daoudi, N. Brodu, J. Rusz, J. Klempir
  Objective discrimination between Progressive Supranuclear Palsy and Multiple System Atrophy using speech analysis

- •A. Garg, N. Brodu, H. Yahia, D. Singh
  An Approach to optimize the fusion coefficients for land cover information enhancement with multisensor data
  EGU General Assembly 2016, session: Thermo-hydro-mechanical couplings and deep geothermal energy , 2016. HAL .

- •H. Yahia et al.
  General methodology for the derivation of high resolution oceanic data through information fusion at different scales
  ESA Living Planet Symposium, 2016. HAL .

- •G. Attuel, H. Yahia
  The role of abnormal inhibitory transmission at the gap junctions of cardiac cells in fibrillation
  Physical Principles of Biological and Active Systems, IOP Institute of Physics, Topical Meeting Edinburgh, United Kingdom , January 2016. HAL .

- •O. Yelekçi et al.
  Wintertime Submesoscale River Plumes in the Bay of Biscay

- •J. Sudre, H. Yahia, O. Pont and V. Garçon
  How to obtain ocean turbulent dynamics at super resolution from optimal multiresolution analysis and multiplicative cascade?

- •O. Yelekçi et al.
  Spatial and Seasonal Distributions of Frontal Activity over the Continental Shelf in the Bay of Biscay, Focus on Density Fronts in Winter
  AGU Ocean Science Meeting, New Orleans, 21-26 , February 2016. HAL .

Invited sessions
- H. Badri, H. Yahia
  Non-convex sparsity. Applications in Image processing.
  IEEE ICCS 2016, Roorkee, India.

- N. Brodu
  Super-resolving multiresolution images with band-independent geometry of multispectral pixels.
  IEEE ICCS 2016, Roorkee, India. HAL

Arxiv

- B. Xu, R. Dubois, O. Pont, H. Yahia
  Nonlinear trend removal should be carefully performed in heart rate variability analysis
  Arxiv, 2016. HAL

2015

PhD thesis

- H. Badri
  Sparse and Scale-Invariant Methods in Image Processing
  defended December 1st, 2015. HAL. "Prix de thèse AFRIF" 2016!

- A. Tamim
  Segmentation et classification des images satellitaires : application à la détection des zones d’upwelling côtier marocain et mise en place d’un applicatif de suivi spatio-temporel
  defended September 22, 2015. HAL. Gold medal, Hubert Curien PhD prize 2017!

Book chapter

- S. Jacquir, B. Xu, S. Binczak, J.-M. Bilbault
Articles in international peer-reviewed journals

- J. Sudre, H. Yahia, O. Pont, V. Garçon
  Ocean Turbulent Dynamics at Superresolution From Optimal Multiresolution Analysis and Multiplicative Cascade

- N. Brodu, J. A. Dijksman, R. P. Behringer
  Spanning the scales of granular materials through microscopic force imaging

- I. Hernandez-Carrasco et al.
  Reconstruction of super-resolution fields of ocean pCO2 and air-sea fluxes of CO2 from satellite imagery in the Southeastern Atlantic
  Biogeosciences, 2015. HAL .

- H. Badri, H. Yahia, D. Aboutajdine
  Fast Edge-Aware Processing via First Order Proximal Approximation

  Detection of Moroccan coastal upwelling fronts in SST images using the microcanonical multiscale formalism

International peer-reviewed conferences

- H. Yahia et al.
  General methodology for the derivation of high resolution oceanic data through information fusion at different scales
ESA Living Planet Symposium, Prague, Czech Republic 2016. HAL.

- G. Attuel, O. Pont, B. Xu, H. Yahia
  Sudden cardiac death and Turbulence
  The 8th International Conference (CHAOS2015) on Chaotic Modeling, Simulation and Applications, Paris, France 2015. HAL.

- B. Xu, S. Jaquir, S. Binczak, H. Yahia, R. Dubois
  Classification of Cardiac Arrhythmia in vitro based on Multivariate Complexity Analysis
  Computing in Cardiology 2015. HAL.

  Spatial and Seasonal Distributions of Frontal Activity over the French continental shelf in the Bay of Biscay observed from satellite Sea Surface Temperature
  HAL.

- A. Tamim, K. Minaoui, K. Daoudi, A. Atillah, D. Aboutajdine
  Detection of Moroccan Coastal Upwelling in SST images using the Expectation-Maximization
  10th International Symposium on Visual Computing (ISVC’14), 2014. HAL.

2014

Articles in international peer-reviewed journals

- A. Tamim, K. Minaoui, K. Daoudi, H. Yahia, A. Atillah, D. Aboutajdine
  An Efficient Tool for Automatic Delimitation of Moroccan Coastal Upwelling Using SST Images

- B. Xu, S. Jaquir, G. Laurent, S. Binczak, O. Pont, H. Yahia
  In vitro arrhythmia generation by mild hypothermia - a pitchfork bifurcation type process
  Physiological Measurement, 2014. HAL.

- V. Khanagha, K. Daoudi, O. Pont, H. Yahia
  Phonetic segmentation of speech signal using local singularity analysis
Digital Signal Processing, Elsevier, 2014. HAL.

- V. Khanagha, K. Daoudi, H. Yahia
  Detection of Glottal Closure Instants based on the Microcanonical Multiscale Formalism
  IEEE Transactions on Audio, Speech and Language Processing, 2014. HAL.

- B. Xu, S. Jacquir, G. Laurent, J.-M. Bilbault, S. Binczak
  Analysis of an experimental model of in vitro cardiac tissue using phase space reconstruction
  Biomedical Signal Processing & Control, 2014. HAL.

International peer-reviewed conferences

- N. Brodu
  Approaches for automated feature detection
  9th IEEE International Conference on Industrial and Information Systems (ICIIS2014), Gwalior, India 2014. HAL.

- H. Badri, H. Yahia
  Handling noise in image deconvolution with local/non-local priors
  ICIP 2014. HAL.

- N. Brodu, J. Dijksman, R. Behringer
  Quantitative DEM of dense granular packings with a multiple contacts force model
  Modeling Granular Media Across Scales 2014, HAL. Web site.

- I. Hernandez-Carrasco et al.
  Validation of inferred high resolution ocean pCO2 and air-sea fluxes with in-situ and remote sensing data.
  HAL.

- A. Garg, S. Vardan Naidu, H. Yahia, D. Singh
  Wavelet Based Resolution Enhancement for Low Resolution Satellite Images
  IEEE ICIIS2014. HAL.

- O. Pont
  Singularity analysis: a method for properly characterizing complexity in
cardiodynamics
International Conference on Complex Systems and Applications ICCSA2014. HAL .
Web site

-  •  K. Daoudi, B. Bertrac
  On classification between normal and pathological voices using the
MEEI-KayPENTAX database: Issues and consequences
  Interspeech 2014. HAL .

-  •  H. Badri, H. Yahia, K. Daoudi
  Fast and Accurate Texture Recognition with Multilayer Convolution and Multifractal
Analysis
  ECCV 2014. HAL .

-  •  H. Badri, H. Yahia, D. Aboutajdine
  Robust surface reconstruction via triple sparsity
  CVPR, 2014. HAL .

-  •  A. Tamim, K. Minaoui, K. Daoudi, A. Atillah, H. Yahia, D. Aboutajdine
  An Efficient Tool for Automatic Delimitation of Moroccan Coastal Upwelling Using
SST Images
  ISIVC, Marrakech, Morroco, 2014. HAL .

-  •  A. Tamim, K. Minaoui, K. Daoudi, A. Atillah, D. Aboutajdine
  On Detectability of Moroccan Coastal Upwelling in Sea Surface Temperature
Satellite Images
  ISVC, Las Vegas, USA, 2014. HAL .

-  •  B. Xu, S. Binczak, S. Jacquir, O. Pont, H. Yahia
  Parameters Analysis of FitzHugh-Nagumo Model for a Reliable Simulation
  36th Annual International Conference of the IEEE Engineering in Medicine and
Biology Society (EMBC'14) 2014. HAL .

-  •  O. Pont, B. Xu
  Cardiodynamic Complexity: Electrocardiographic Characterization of Arrhythmic
Foci
HAL

-  •  S. Kumar Maji, T. Fusco, H. Yahia
  Cross-scale inference and wavefront reconstruction
  SPIE Astronomical Telescopes + Instrumentation, Session: Adaptive Optics Systems
IV (Conference 9148) Montreal 2014. HAL.

- K. Daoudi, S. Mrad
A novel nonlinear approach to speech perturbation measure for pathological voice classification
IEEE 22nd Pacific Voice Conference, 2014. HAL.

- A. Tamim et al.
A Simple Tool for Automatic Extraction of Moroccan Coastal Upwelling from Sea Surface Temperature Images
SITA’14 - 9th International Conference on Intelligent Systems: Theories and Applications 2014. HAL.

- B. Xu, S. Binczak, S. Jaquir, O. Pont, H. Yahia
Complexity analysis of experimental cardiac arrhythmia
IEEE Tensymp, 2014. HAL. Best paper award.

Observing submesoscale activity in the Bay of Biscay with satellite-derived SST and Chlorophyll concentration

- I. Hernandez-Carrasco et al.
Inference of super-resolution ocean pCO2 and air-sea CO2 fluxes from non-linear and multiscale processing methods

- B. Xu, S. Jacquir, S. Binczak, J.-M. Bilbault
Phase Space Reconstruction of an Experimental Cardiac Electrical Signal
ICCSA 2014 : 4th International Conference on Complex Systems and Applications 2014 HAL.

Invited sessions papers

- H. Yahia
Edges, transitions, criticality: novel nonlinear characterizations of low-level transition features in signal processing and applications to cross-scale inference in
complex signals
   ISIVC 2014.

National peer-reviewed conferences

- • J.-M. Bilbault, S. Jacquir, B. Xu, G. Laurent, S. Binczak
  Dynamical analysis for an in vitro model signal
  34ème Séminaire de la Société Francophone de Biologie Théorique 2013,  HAL.
  Web site

- • N. Brodu, J. Dijksman, R. Behringer
  Structure and forces in stressed 3D packings
  Présentation au GDR Phenix: Driven disordered systems, Laboratoire interdisciplinaire de physique 2014,  HAL.
  GDR Phenix web site

2013

Articles in international peer-reviewed journals

- • S. K. Maji, H. Yahia
  Edges, Transitions and Criticality
  Pattern Recognition 47(6) 2104-2115, Elsevier, June 2014.  HAL.
  Direct access

- • S. K. Maji, H. Yahia, H. Badri
  Reconstructing an image from its edge representation
  Digital Signal Processing, Elsevier, 2013.  HAL.

- • V. Khanagha, K. Daoudi, O. Pont, H. Yahia, A. Turiel
  Non-linear speech representation based on local predictability exponents
  Neurocomputing, Elsevier,  2013.  HAL.

International peer-reviewed conferences
- • H. Badri, H. Yahia, D. Aboutajdine
  **Fast Multi-Scale Detail Decomposition via Accelerated Iterative Shrinkage**
  SIGGRAPH ASIA, 2013. [HAL](#) · [ACM Digital Library](#)

- • O. Pont, B. Xu
  **Characterizing Complexity of Atrial Arrhythmias through Effective Dynamics from Electric Potential Measures**
  Computing in Cardiology, 2013. [HAL](#)

- • R. Jourani, K. Daoudi, R. André-Obrecht and D. Aboutajdine
  **Combination of SVM and Large Margin GMM modeling for speaker identification**
  Eusipco, 2013. [HAL](#)

- • M. Al Mashrgy, N. Bouguila and K. Daoudi
  **A statistical framework for positive data clustering with feature selection: application to object detection**
  Eusipco, 2013. [HAL](#)

- • A. Tamim, K. Minaoui, K. Daoudi, H. Yahia, A. Atillah, M. F. Smiej, D. Aboutajdine
  **A simple and efficient approach for coarse segmentation of moroccan coastal upwelling**
  Eusipco, 2013. [HAL](#)

- • B. Xu, O. Pont, G. Laurent, S. Jacquir, S. Binczak, H. Yahia
  **Experimental study of arrhythmia due to mild therapeutic hypothermia after resuscitation of cardiac arrest**
  Computing in Cardiology, 2013. [HAL](#)

- • J. Sudre, H. Yahia, V. Garçon
  **Analyse multirésolution opérée sur des exposants de singularité en formalisme microcanonique: détermination de la dynamique océanique et des échanges océan/atmosphère submésoéchelle**
  XXIVe Colloque Gretsi - Traitement du Signal et des Images - Brest - 3 au 6 Sept 2013. [HAL](#)

- • B. Xu, S. Jacquir, G. Laurent, J.-M. Bilbault, S. Binczak
  **Phase space reconstruction of an experimental model of cardiac field potential in normal and arrhythmic conditions**

- • J. Sudre, H. Yahia, O. Pont, C. Pottier, C. Maes, V. Garçon
Validation of high and super resolution ocean dynamics products

- V. Khanagha, K. Daoudi
Efficient GCI detection for efficient sparse linear prediction
Non-Linear Speech Processing (NOLISP 2013), June 19-21, Mons, Belgium, 2013. HAL

- B. Xu, S. Jacquir, O. Pont, H. Yahia
Cardiac arrhythmia induced by hypothermia in a cardiac model in vitro
40th International Congress on Electrocardiology (ICE 2013), Glasgow, UK, 2013. HAL

Invited sessions papers

- O. Pont, H. Yahia, B. Xu
Arrhythmic dynamics from singularity analysis of electrocardiographic maps

- H. Yahia, D. Singh
Advanced nonlinear approaches for handling complex datasets and acquisitions in Earth Observations and Universe Sciences
India-CEFIPRA workshop in ICST "Challenges in overcoming complexity, from big data to cyberphysical systems", April 4 - 5, 2013, New Delhi- India, Bhagirathi Building - IIT Delhi  . HAL .

National peer-reviewed conferences

- B. Xu, O. Pont, G. Laurent, S. Jacquir, S. Binczak, H. Yahia
Arrhythmia due to mild therapeutic hypothermia - a study in vitro
LIRYC Workshop, 2013, HAL.

- O. Pont, B. Xu, H. Yahia
  Complexity in cardiodynamics - where arrhythmias emerge and measures of organization
  LIRYC Workshop, 2013, HAL.

Doctoral thesis (PhDs)

- V. Khanagha
  Novel Multiscale Methods for Nonlinear Speech Analysis
  Bordeaux 1 University, 2013. pdf, Archive ouverte TEL.

- S. Kumar Maji
  Multiscale Methods in Signal Processing for Adaptive Optics
  Bordeaux 1 University, 2013. pdf, Archive ouverte TEL.

- J. Sudre
  Circulation submésoéchelle et comportements des prédateurs marins supérieurs : Apport de l’analyse multi-échelles et multi-capteurs
  Toulouse, Université de Toulouse III Paul Sabatier, 2013. Archive ouverte TEL.

Reports

- N. Vinuesa
  Internship report HAL.

- B. Bertrac
  Internship report HAL.

- S. Mrad
  Internship report HAL.

2012

Articles in international peer-reviewed journals
- O. Pont, A. Turiel, H. Yahia
  Singularity analysis of digital signals through the evaluation of their Unpredictable Point Manifold

- R. Jourani, K. Daoudi, R. André-Obrecht, D. Aboutajdine
  Discriminative speaker recognition using Large Margin GMM

- V. Khanagha, K. Daoudi
  An Efficient Solution to Sparse Linear Prediction Analysis of Speech

- O. Pont, M. Haissaguerre, H. Yahia, N. Derval, M. Hocini
  Microcanonical processing methodology for ECG and intracardial potential: application to atrial fibrillation
  Transactions on Mass-Data Analysis of Images and Signals (ISSN:1868-6451), 4(1), 2012. [HAL](#).

International peer-reviewed conferences

- O. Pont, H. Yahia, R. Dubois, M. Haissaguerre
  A Singularity-analysis Approach to characterize Epicardial Electric Potential
  Computing in Cardiology, vol. 39, 2012, ISSN 0276-6574. [HAL](#).

- S. K. Maji, O. Pont, H. Yahia, J. Sudre
  Inferring Information across Scales in Acquired Complex Signals

- V. Khanagha, K. Daoudi
  Efficient multipulse approximation of speech excitation using the most singular manifold
  Interspeech 2012, Portland, USA. [HAL](#).

- S. K. Maji, H. Yahia, O. Pont, J. Sudre, T. Fusco, V. Michau
  Towards Multiscale Reconstruction of Perturbated Phase from Hartmann-Shack
Acquisitions

IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2012) [HAL](http://hal.archives-ouvertes.fr/)

- C. Garbe et al.
  Climatically-active gases in the Eastern Boundary Upwelling and Oxygen Minimum Zone (OMZ) systems
  Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International. [HAL](http://hal.archives-ouvertes.fr/)

- C. Garbe et al.
  Climatically-active gases in the Eastern Boundary Upwelling and Oxygen Minimum Zone (OMZ) systems
  European Geophysical Union, general assembly, EGU 2012, Vienna, Austria. [HAL](http://hal.archives-ouvertes.fr/)

- J. Sudre, H. Yahia, O. Pont, C. Pottier, C. Maes, V. Garçon
  Towards high-resolution mapping of ocean dynamics: multiscale fusion between low-resolution altimetry and high resolution sst
  Globcurrents, Needs for Ocean Surface Current Data from Space, ESA DUE GlobCurrent User Consultation meeting Agenda, ESA Ifremer, March 7-9 2012, Brest, France. [pdf](http://hal.archives-ouvertes.fr/) [HAL](http://hal.archives-ouvertes.fr/)

- O. Pont, H. Yahia, R. Dubois
  Microcanonical multifractal analysis of electric potential maps on the heart surface
  FisEs 2012. [pdf](http://hal.archives-ouvertes.fr/) [HAL](http://hal.archives-ouvertes.fr/)

National peer-reviewed conference

- O. Pont
  Analyse multiéchelles du potentiel électrique épicardique
  Biologie, Médecine et Systèmes Complexes, Rencontres du GdR "Dynamique et Contrôle des Systèmes Complexes" (DYCOEC) en partenariat avec le GdR "STIC-Santé", Rouen, 26-28 Novembre 2012. [HAL](http://hal.archives-ouvertes.fr/)
Invited speaker session

- H. Yahia, J. Sudre, V. Garçon, C. Pottier
  High-Resolution Ocean Dynamics from Microcanonical Formulations in Nonlinear Complex Signal Analysis
  European Geosciences Union General Assembly (EGU), Vienna, Austria, April 22-27, 2012. Session NP3.1 "Nonlinear, scaling and Complex Physical and Biogeophysical Processes in the Atmosphere and Ocean".
  EGU 2012 web site session
  HAL
  Link

Report

- H. Badri
  Informatique graphique dans le domaine du gradient et formalisme des systèmes reconstructibles
  Internship report. HAL

Doctoral thesis (PhD)

- R. Jourani
  Reconnaissance automatique du locuteur par des GMM à grande marge
  Université de Rabat, 2012. Archive ouverte TEL

2011

Article in international peer-reviewed journals
- O. Pont, A. Turiel, C. Perez-Vicente
  **On Optimal Wavelet Bases for the Realization of Microcanonical Cascade Processes**

**International peer-reviewed conferences**

- V. Khanagha, H. Yahia, K. Daoudi, O. Pont, A. Turiel
  **Reconstruction of Speech Signals from their Unpredictable Points Manifold**
  [Link to Springer on-line version](#).

- K. Daoudi, R. Jourani, R. André-Obrecht, D. Aboutajdine
  **Speaker identification using discriminative learning of large margin GMM**
  [HAL](#).

- R. Jourani, K. Daoudi, R. André-Obrecht, D. Aboutajdine
  **Fast Training of Large Margin Diagonal Gaussian Mixture Models for Speaker Identification**

- R. Jourani, K. Daoudi, R. André-Obrecht, D. Aboutajdine
  **Speaker Verification using Large Margin GMM Discriminative Training**
  *ICMCS (International Conference on Multimedia Computing and Systems)* 2011. [HAL](#).

- O. Pont, M. Haissaguerre, H. Yahia, N. Derval, M. Hocini
  **A Microcanonical Multifractal Approach to the Characterization of Heartbeat**
Dynamics
FisEs 2011, June 2011, Barcelona, Spain. HAL.

- M. Al Mashrgy, N. Bouguila, K. Daoudi
  A robust approach for multivariate binary vectors clustering and feature selection
  ICONIP 2011 (2011 International Conference on Neural Information Processing)
  November 14-17, 2011, Shanghai, China. HAL.

- S. Kumar Maji, H. Yahia, O. Pont, T. Fusco, V. Michau, J. Sudre
  A multiscale approach to phase reconstruction for Adaptive Optics
  IEEE 2011 10th International Workshop on Electronics, Control, Measurement and
  Signals (ECMS 2011), June 1-3, 2011, Liberec, Czech Republic. HAL. IEEEXplore.

- J. Winebarger, K. Daoudi, H. Yahia
  Improving SVF with DISTBIC for phoneme segmentation
  SPECOM’2011, Speech and Computer, XIV International Conference, September
  27-30, 2011 Russia. HAL.

- O. Pont, M. Haissaguerre, H. Yahia, N. Derval, M. Hocini
  Heartbeat dynamics from a microcanonical multiscale approach
  Computing in Cardiology, 18-21 September, 2011, Zhejiang University, Hangzhou,
  China. Conference web site. HAL.

- H. Kumar, H. Yahia, D. Singh
  A detailed analysis of multi-sensor fusion of moderate resolution imaging
  spectroradiometer with advanced spaceborne thermal emission and reflection
  radiometer on classification accuracy for improved land cover classification
  19th European Signal Processing Conference, August 29-September 2, 2011,
  Barcelona, Spain. HAL.

- O. Pont, M. Haissaguerre, H. Yahia, N. Derval and M. Hocini
  A novel analysis method to characterize heartbeat dynamics through the
  Microcanonical Multiscale Formalism
  6th International Conference on Mass Data Analysis of Images and Signals in
  Medecine, Biotechnology and Chemistry, August 30 - September 3, 2011, New York, USA.
  HAL.

- O. Pont, A. Turiel, H. Yahia
  An optimized algorithm for the evaluation of local singularity exponents in digital
  signals
  14th International Workshop on Combinatorial Image Analysis (IWCA 2011), May
  23-25, Madrid, Spain in J. K. Aggarwal, R. P. Barneva, V. E. Brimkov, K. N. Koroutchev,

direct access

HAL

- • V. Khanagha, K. Daoudi, O. Pont, H. Yahia
  Improving text-independent phonetic segmentation based on the microcanonical multiscale formalism
  2011 International Conference on Acoustics, Speech and Signal Processing (ICASSP 2011), May 22-27, Prague, Czech Republic.  
  HAL

- • J. Sudre, H. Yahia, O. Pont, C. Pottier, V. Garçon
  Inferring fluid motion at submesoscale from high resolution remotely sensed data
  2011 Ocean Surface Topography Science Team Meeting, October 17-21, San Diego, USA.  
  Conference web site  
  HAL

Invited conferences

- • H. Yahia, J. Sudre, V. Garçon, C. Pottier
  High-resolution ocean dynamics from microcanonical formulations in non linear complex signal analysis
  AGU Fall Meeting, December 5-9, San Francisco, USA.  
  HAL

- • H. Yahia
  Local Predictability Exponents and universality classes in the framework of reconstructible complex systems
  Assyst Workshop on: Mathematics in Network Science: Implications to Socially Coupled Systems, Torino, Italy, November 21-23, Italy.  
  HAL

National conferences

- • V. Khanagha, O. Pont, K. Daoudi, H. Yahia
  Une nouvelle approche non-linéaire pour la segmentation phonétique
  XXIIle Colloque Gretsi, Bordeaux, 5-8 Septembre 2011.  
  HAL

- • R. Jourani, K. Daoudi, R. André-Obrecht, D. Aboutajdine
  Apprentissage discriminant des GMM à grande marge pour la vérification
automatique du locuteur
   XXIIIe Colloque Gretsi, Bordeaux, 5-8 Septembre 2011. HAL.

- • J. Sudre, H. Yahia, V. Garçon, C. Pottier
  Evaluation de la dynamique océanique à haute résolution satellitaire SST par fusion
de données à différentes échelles spatiales
  Atelier sur la fusion de données, Météo France, 18 Octobre 2011, Toulouse. Works
  hop web site
  - HAL
  -

Report

- • J. Winebarger
  Phoneme segmentation and Voice activity detection
  Internship report, HAL.

2010

Article in international peer-reviewed journals

- • H. Yahia, J. Sudre, C. Pottier, V. Garçon
  Motion analysis in oceanographic satellite images using multiscale methods and the
  energy cascade
  Pattern Recognition, 2010 direct access. HAL. pdf.

International peer-reviewed conferences

- • O. Pont
  Universality in multiscale, turbulent-like self-organization: from algal blooms to
  heartbeat to stock market dynamics
  Emergence & Design of Robustness, General principles and Application to
Biological, Social and Industrial Networks, IFISC, Palma de Mallorca, september 21-25, 2010, Spain  
- • J. Sudre, O. Pont, H. Yahia, C. Pottier, V. Garçon
  **Optimal decomposition for the evaluation of ocean dynamics**  
  OST-ST Meeting, Altimetry for Oceans and Hydrology, 18 - 22 October 2010, Lisbon - Portugal  
  [HAL](#)  

- • J. Sudre, O. Pont, H. Yahia, C. Pottier, V. Garçon
  **Evidencing of multiplicative cascading and intermittency in real/synthetic oceanographic signals: application to the evaluation of ocean dynamics**  
  OST-ST Meeting, Altimetry for Oceans and Hydrology, 18 - 22 October 2010, Lisbon - Portugal  
  [HAL](#)  

- • V. Khanagha, K. Daoudi, O. Pont, H. Yahia
  **A novel text-independant phonetic segmentation algorithm based on the microcanonical multiscale formalism**  
  Interspeech 2010, Makuhari, Japan, September 26-30  
  [HAL](#)  

- • R. Jourani, K. Daoudi, R. André-Obrecht, K. Aboutajdine
  **Large Margin Gaussian mixture models for speaker identification**  
  Interspeech 2010, Makuhari, Japan, September 26-30  
  [HAL](#)  

- • J. Sudre, H. Yahia, C. Pottier, V. Garçon
  **Inferring fluid motion at submesoscale from high resolution remotely sensed data**  
  Orflow10, Trends in Complex Systems, International Workshop on Living Organisms in Flows: From Small-scale Turbulence to Geophysical Flow, Palma de Majorca, Spain  
  [HAL](#)  

- • V. Khanagha, K. Daoudi, O. Pont, H. Yahia
  **Application of the microcanonical multiscale formalism to segmentation of speech signals**  
  European Signal Processing Conference (EUSIPCO 2010), August 23-27, 2010, Aalborg, Denmark  
  [direct access](#)  

**National conferences**
- • V. Khanagha, K. Daoudi, O. Pont, H. Yahia
  Segmentation indépendante du texte par le formalisme multiéchelles microcanonique
  MajecSTIC 2010, Bordeaux, France. [HAL](#).

- • V. Khanagha, K. Daoudi, O. Pont, H. Yahia
  Application du formalisme multiéchelles microcanonique pour la segmentation des signaux de parole
  Coresa 2010, Lyon, France. [HAL](#).

**Report**

- • J. Winebarger
  Internship report [pdf](#) / [HAL](#).

**2009**

**Articles in international peer-reviewed journals**

- • A. Turiel, H. Yahia, C. Pérez-Vicente
  Microcanonical multifractal formalism—a geometrical approach to multifractal systems: Part I. Singularity analysis
  Journal of Physics A: Mathematical and Theoretical, 2008. [HAL](#).

- • O. Pont, A. Turiel, C. J. Pérez-Vicente
  Description, modeling and forecasting of data with optimal wavelets
  in: Journal of Economic Interaction and Coordination, June 2009, vol. 4, no 1, p. 39–54. [HAL](#).

- • O. Pont, A. Turiel, C. Perez-Vicente
  Empirical evidences of a common multifractal signature in economic, biological and physical systems

- • E. Sanchez-Soto, A. Potamianos, K. Daoudi
  Unsupervised Stream-Weights Computation in Classification and Recognition Tasks
International peer-reviewed conferences

- V. Khanagha, A. Khanagha, M. H. Kahaei
  Selective Tap Training of FIR filters for Blind Source Separation of Convolutive Speech Mixtures

- V. Khanagha, A. Khanagha
  Solving global permutation ambiguity of time domain BSS using speaker specific features of speech signals

- H. Yahia, J. Sudre, C. Pottier, V. Garçon
  Determination of geostrophic vector field on high resolution SST images from the energy cascade

- M. Bouali, H. Yahia, A. Turiel, P. Henry
  A Multifractal approach for sun glint in medium resolution satellite imagery

- N. Bouguila, K. Daoudi
  A Statistical Approach for Binary Vectors Modeling and Clustering
  in: 13th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2009. [HAL].

- N. Bouguila, K. Daoudi
  Learning concepts from visual scenes using a binary probabilistic model

- K. Daoudi, J. Louradour
  A comparison between sequence kernels for SVM speaker verification
Book chapter

- K. Daoudi
  
  Iterated function systems and some generalizations: local regularity analysis and multifractal modeling of signals
  
  in Scaling, Fractals and Wavelets, 2009. [HAL](https://hal.example.com)