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Biography

Position	INRIA Research Associate Leader of INRIA project team RESO
Location	Ecole Normale Supérieure de Lyon, INRIA Rhône-Alpes LIP, 46 allée d'Italie, 69364 Lyon cedex 07. France +33 (0)4 72 72 83 89 (Phone) / +33 (0)4 72 72 80 80 (Fax) E-mail: Paulo.Goncalves@inria.fr URL: http://perso.ens-lyon.fr/paulo.goncalves
Date of birth	March 16, 1967
Citizenship	Portuguese
Foreign languages (fluent)	French, English, Spanish, Portuguese

Education and Business

Education

2010	ED Mathématique et Informatique fondamentale, ENS Lyon	HdR : “Analyse temps-fréquence et modèles d’invariance d’échelle : Contribution à l’étude de systèmes complexes”
1993	Inst. Nat. Polytechnique de Grenoble. France	Ph.D : “Time-Scale Analysis”
1990	CEPHAG, Grenoble. France	MS : Digital Signal Processing
1990	I.C.P.I., Lyon. France	Electrical and Computer Engineering degree
1987	I.U.T., Villeurbanne. France	D.U.T : Electrical engineering

Business activities

current	INRIA Rhône-Alpes, head of team RESO	Research associate
05-09	INRIA Rhône-Alpes, team RESO	Research associate
03-05	Inst. Sup. Tech., Inst. Sys. Rob., Lisbon. Portugal	On-leave researcher
99-03	INRIA Rhône-Alpes, team IS2	Research associate
96-99	INRIA Rocquencourt, team FRACTALES	Research associate
94-96	Rice University, Houston. USA	Post-Doctoral fellowship
90-93	Ecole Normale Supérieure de Lyon. France	PhD student
1990	Chamonix Hospital. France	Research assistant
1989	Université Claude Bernard. France	Research assistant
1987	Cité des Sciences et de l’Industrie de la Villette, Paris. France	System manager
1987	ARPE — Engineering Services	Assistant engineer

Teaching experience

S 09	ENS Lyon - Master 2R	Responsible of theme <i>Models and Optimization for Emerging Infrastructures</i>
S 08	ENS Lyon - Master 2R	Responsible for course of study <i>Models and Optimization for Emerging Infrastructures</i>
S 07	ENS Lyon - Master <i>Math-Info</i>	Lecturer on <i>Protocols and stochastic processes</i>
01-03	INPG-ENSERG	Lecturer on <i>Non-stationarity and Multiresolution Analysis</i>
97-01	U. Nacional Autonoma de Mexico (Grad. course)	Lecturer on <i>Wavelets and Fractals</i>
98-99	ENSEA, DEA TIS (MS)	Lecturer on <i>Wavelets and Fractals</i>
97-98	Ecole Centrale de Paris (Grad. course)	Lecturer on <i>Wavelets and Fractals</i>
93-95	E.N.S. Lyon. France (MS)	Assistant Professor (Electronics)
90-94	CPE Lyon (former ICPI). France (Grad. course)	Assistant Professor (Signal Processing)
91-94	Institut Universitaire de Technologie	Assistant Professor (Physics)
90-91	Ecole Préparatoire, Lyon. France	Assistant Professor (Physics, Electronics, Optics)

Scientific activities

Scientific collaborations

S 09	Hôpital <i>Femme-Mère-Enfant</i> (Bron) and CNRS team SiSyPhe (ENS Lyon, Physics Lab) on foetal heart beat analysis
S 08	EPI Sisyphé (Inria Rocquencourt) and Hôpital Kremlin-Bicêtre (ANR DMASC) on scale invariance properties of heart beat rate time series
04-09	Instituto Geográfico Português : Remote sensing from multi-temporal MODIS images
00-05	Collaborative program between INRIA and GRICES (former ICCTI) . <i>Statistical inferences for signal processing: Instantaneous spectral measures and gaussian mixture models.</i> Collaboration between group IS2 and Institute for Sciences and Robotics (Inst. Sup. of Technology) of Lisbon (Portugal)
00-03	Local Rhône-Alpes program on selected topics: <ul style="list-style-type: none">• <i>Wavelet analysis applied to acoustics and turbulence.</i> Joint work with INPG-ENSIMAG• <i>Acoustical study of vorticity in turbulent flows.</i> Joint work with UJF-LEGI
01-02	CNRS <i>Specific Action</i> on “Scaling laws : models and tools”, with ENS-Lyon
S 99	Affiliation to the research group on <i>Pseudo-differential operators and diffusive representations for modeling, control and signal.</i>
S 98	Collaboration with research group U572 (former U127) of INSERM (Lariboisière Hospital, Paris) on <i>Heart bit rate analysis.</i>
1997	In charge for group FRACTALES of a cooperation project with Department of Chemistry Engineering (Cagliari, Italy) and entitled <i>Hydrodynamics Signal Processing.</i>

Industrial contracts

- S 08 Alactel-Lucent Bell Labs : Joint Laboratory with INRIA on *Traffic Awareness*
- 1998 Research contract between INRIA and TOTAL CST/RCS (ref. 1 98 D309 00 21196 012) on *Multifractal analysis of well logs*.
- 1997 Co-author of final contract report between INRIA and Alcatel Espace (Ref. 1 94 D363 00 21196 132), on *Type based Multifractal segmentation for radar images*.

Code development

- S 04 Development coordinator of a toolbox for Land Cover classification based on satellite images time series (developed in Matlab), proposed by *Instituto Geográfico Português* (Lisbonne) and group MISTIS at INRIA.
- 97-98 Development manager of *FRACLAB*, a fractal analysis toolbox for signal and image processing (developed in Scilab and Matlab), proposed by group FRACTALES at INRIA.
- 1997 *Type based multifractal segmentation for radar images*. Matlab code developed within contract with Alcatel Espace (Ref. 1 94 D363 00 21196 132).
- 1996 Co-author of *Time-Frequency toolbox (TFTB)*. Freeware Matlab code available on the GdR-PRCISIS (CNRS) web site.

Organizations and scientific community animation

- 2010 Local chairman of *3ème rencontre MixMod*, ENS Lyon.
- 2007 Local chairman of *GridNets 2007*, Lyon.
- 2004 Director and co-organizer of *WAMA2004*, a *Wavelet and Multifractal Analysis* summer school held at *Institut d'Études Scientifiques de Cargèse* (Corsica, France), July 17–31, 2004.
- 02-04 Associate Editor of *IEEE Signal Processing Letters*.
- 01-04 Scientific board member of the “Specialists committee” at University Joseph Fourier, UFR IMA (Section 26).
- 98-99 Scientific board member of the “Specialists committee” at University of Paris XI (Section 61).
- 1998 Co-organizer of *International Wavelets Conference*, held in Tanger (Morocco) from april 13 to 17, 1998.
- 97-02 Co-responsible for the work group GT2: *Analysis and Decision in Signal*, from GdR-PRCISIS (Information-Signal-Images-Vision), unit G 1047 of CNRS.

97-02 Co-manager of the de Research Group *Fractals and wavelets for signal and image processing* within GT2, GdR-PRC ISIS.

Students supervision

- S 10 Ph. D. director of Guilherme Koslovski on *Dynamically provisioned virtual computing and communication infrastructures : specification, allocation and execution process* (P. Vicat-Blanc, former Ph. D dir.) ENS Lyon, at INRIA team RESO.
- S 10 Ph. D. director of Fabienne Anhalt on *Virtualisation des équipements réseau : Partage des ressources, performance et applications* (P. Vicat-Blanc, former Ph. D dir.) ENS Lyon, at INRIA team RESO
- S 09 Ph. D. director of Marina Sokol on *Clustering and Learning Techniques for Traffic / User Classification*, (K. Avrachenkov co-advisor). ENS Lyon, at INRIA teams RESO and Maestro.
- 06-09 Ph. D. director of Patrick Loiseau on *Contributions to the Analysis of Scaling Laws and Quality of Service in Networks: Experimental and Theoretical Aspects*, (P. Vicat-Blanc co-advisor). ENS Lyon, LIP, INRIA team RESO.
- 05-09 Ph. D. co-advisor of H. Carrão on *Land Cover Classification using multi-temporal MODIS and MERIS satellite images*, (M. Caetano Dir.). IGP, Lisbonne, Portugal.
- 01-04 Ph. D. co-adviser of J. Gosme on *Adaptive diffusion schemes for time-frequency and time-scale representations*, (C. Richard Dir.). Univ. Tech. de Troyes, France.
- 00-04 Ph. D. co-advisor of C. Lenoir on *Heart Rate Variability: the Mouse Study*, (B. Swynghedauw Dir.). INSERM U572, Hôpital Lariboisière, Paris, France.
- 2003 MS Advisor (DESS) on *Empirical Mode Decomposition for Images* by B. Esterni. ENSIMAG, Grenoble, France.
- 2001 MS Advisor (DEA) on *Représentations temps-fréquence diffusées. Propriétés, application et perspectives. Contrôle de complexité de détecteurs temps-fréquence*, by J. Gosme. Univ. Tech. de Troyes and INRIA - IS2.
- 2000 MS co-advisor (DEA) on *Optimisation semi-définie pour la synthèse d'ondelettes* by C. Triadou. ENSIMAG and INRIA - NUMOPT.
- 2000 MS co-advisor (DEA) on *étude conjointe des variabilités du rythme cardiaque et de la repolarisation ventriculaire chez l'Homme insuffisant cardiaque modéré* by C. Froger. école doctorale *Physiologie et biologie de la respiration et de la circulation*, Univ. Paris VII and Hôpital Lariboisière, INSERM U572.
- 1998 MS advisor (DEA) *Segmentation de well-logs en zones homogènes* by R. Ramanantsiarovana, ESIEA and INRIA - FRACTALES
- 97-98 Graduate Projects (2) *Fraclab toolbox development*. (INRIA - FRACTALES)
- 1995 Graduate Projects (DEA) on *Hybrid Linear/Bilinear Time-Scale Analysis*. by M. Pasquier. ENST Paris and Rice Univ. (USA).

1993 MS co-advisor (DEA) on *Signaux Browniens fractionnaires: Synthèse et estimation de la dimension fractale* by D. Janer, école doctorale *Signal Image Parole*, (INPG) and (ENS-LYON).

Thesis committee

2011 *Inverse problems in Networks*, B. Kauffmann. Ph. D. from Univ. Pierre et Marie Curie, Paris, France. Examineur.

2004 *Adaptive diffusion schemes for time-frequency and time-scale representations*, J. Gosme. Ph. D. from Univ. Technologique de Troyes, France. Examineur.

2003 *Analyse Multiéchelle d'image par la BEMD. Application à la DMLA*, J. C. Nunes. Ph. D. from Université Paris XII - Val de Marne, Génie Biologique et Médical. Rapporteur.

2002 *Physical constraints on the time-frequency plane*, Paulo M. D. Mónica de Oliveira. Ph. D. from Universidade Técnica de Lisboa, Instituto Superior Técnico. Rapporteur.

2001 *Problèmes d'échelle dans la segmentation par ondelettes d'images texturées*, S. Meignen. Ph. D. from Université Joseph Fourier, École doctorale de Mathématiques Appliquées. Examineur.

1998 *Une Méthode pour la Détection à Structure Imposée. Application au plan temps-fréquence*, C. Richard. Ph. D. from Université Technologique de Compiègne. Examineur.

1998 *Méthodes d'analyse des propriétés d'auto-affinité des processus comportant des composantes spectrales en $1/f^\alpha$* , E. Le Tavernier. Ph. D. from Université Technologique de Compiègne. Examineur.

Invitations

Apr. 2009 "IEEE 17th Signal Processing and Communications Applications Conference", Antalya (Turkey). *Empirical Mode Decomposition: Definition and applications to non linear time series*, invited speaker.

Jan. 2004 "Joint Mathematics and Robotics Seminars", IST, Lisbon (Portugal). *Wavelets: A versatile tool*, invited speaker.

May 2002 "Turbulence: mesure et signaux", Cargèse (France). *Diverging Moments*, invited speaker.

April 2002 "2nd meeting of the European Study Group of Cardiovascular Oscillations", Sienna (Italy). *Time-Frequency Tools: a Survey*, invited speaker.

May 2000 "International Conference on Telecommunications", Acapulco (Mexico). *Existence test of moments: Application to Multifractal Analysis*, invited speaker.

Oct. 1999 "Statistiques et Modélisations Stochastiques" seminars of LMC – IMAG (France). *Quelques exemples d'applications des ondelettes à l'analyse fractale*, invited speaker.

- March 1998 “6th Computational Symposium” of Universidad Nacional Autonoma de Aguas Calientes (Mexico). *Wavelets and Fractals, a solution for some problems in Image processing*, invited speaker.
- Nov. 1997 “Gravitational Wave Data Analysis Workshop 2”, Université d’Orsay (France). *Time-Frequency Methods in Time Series Data Analysis*. invited speaker, plenary talk.
- May 1997 “Institut de Recherche en Cybernetique de Nantes”, ECN (France). *Analyse temps-échelle et régularité de fonctions*, invited speaker.
- Nov. 1996 “Ondelettes et Traitements du Signal” seminars of CMAP at École Polytechnique (France). *Distributions de pseudo Wigner affines : définition et noyaux de paramétrisation*, invited speaker.
- May 1996 “Meta2 - Meval - Fractales” seminars at INRIA Rocquencourt (France). *Des ondelettes aux distributions temps-échelle: un outil d’analyse pour les signaux irréguliers*, invited speaker.

Publications

Book edition : 3

Articles in International Journals and Book chapters : 23

Articles in International Conferences : 40

Technical reports and thesis : 9

A complete list is available from: <http://perso.ens-lyon.fr/paulo.goncalves/BIB/>