

VITAE

Sérgio Manuel Machado Jesus

1 Personal

Family Name: JESUS
Given names: Sérgio Manuel Machado
Date of birth: 15 July 1959
Place of birth: Pointe-Noire, Congo
Nationality: Portuguese
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Academic degree: Doctor of Science (Université de Nice, France)
Speciality: Engineering Science
Languages: Portuguese (mother), English, French, Spanish and Italian

2 Academic

2004 *Agregação*, IST, Technical University of Lisbon, Portugal
1986 Doctor of Science, Université of Nice, France
1983 DEA, Signal Processing and Automation, Université de Nice, France
1982 Diplome de Maitrise, Electronics and Automation, Univ. of Nice, France
1980 DUT, Institut Univ. de Technologie, Université of Nice, France

3 Employment

2007 Full Professor, University of Algarve (Faro), Portugal
2001 “Nomeação Definitiva” (10 year)
1996-07 Associate Professor, University of Algarve (Faro), Portugal
1992-96 Assistant Professor, University of Algarve (Faro), Portugal
1985-92 Senior scientist, NATO Undersea Research Centre (La Spezia), Italy
1983-85 Teaching Assistant, Institut Universitaire de Technologie(IUT) (Nice), France

4 Research

Dr. Jesus was hired by the NATO Underwater Research Centre (NURC) in La Spezia, Italy, where he worked as scientist from 1985 to 1992. He was the coordinator of the project “GEO-

PHYSICAL SEAFLOOR EXPLORATION WITH A TOWED ARRAY IN SHALLOW WATER”, under the EU programme Marine Science and Technology (MAST) from 1993 to 1996. He led a number of other projects funded by the Science and Technology Foundation (Portugal) such as the “Internal Tide Measurements with Acoustic Tomography Experiments (INTIMATE)” (1997-2000), INFANTE (1997-2001), LOCAPASS (2001-2003), TOMPACO (2000-2004), ATOMS (2000-2004), NUACE (2004-2006), RADAR (2004-2007), UAB (2006-2007) and presently projects PHITOM (2007-2010) and WEAM (2007-2010). He is a member of the Network of Excellence ESONET (European Seafloor Observation Network) an EU initiative for long term ocean observation. In 2008 he obtained as coordinator two EU projects under FP7: Underwater Acoustic Network (UAN) and Ocean Acoustic Exploration (OAEEx). Most of his research is directed towards signal processing aspects of underwater acoustics both for array processing, underwater communications and inverse problems such as ocean tomography and geophysical exploration for bottom properties that he carries out at the Signal Processing Laboratory (SiPLAB) that he has founded in 1993. SiPLAB is part of the Institute for Systems and Robotics at IST in Lisbon (Associated Laboratory) and his research is regularly evaluated through FCT (the portuguese research agency in science and technology).

5 Other scientific and academic activities

Dr. Jesus has been serving as General Director (1998-2008) and presently as President of the Administration Board of CINTAL, a Center of Technological Research in Faro (Portugal) and as Head of the Department of Electrical Engineering and Computation for two terms, (1999-2001) and (2003-2005) at the University of Algarve (Faro), Portugal. Dr. Jesus also served as Associate Editor of IEEE Trans. on Signal Processing between 1998 and 2002 and acts as reviewer of the Journal of Acoustical Society of America, IEEE Journal of Oceanic Engineering, ICASSP and others. He is permanent member of the scientific committee of the European Conference on Underwater Acoustics (ECUA) and has chaired sessions in a number of international scientific conferences (OCEANS, ECUA, ICTCA, etc...). He has chaired in several project evaluation boards in Portugal and for the EU. Since 1992, he is responsible for a number of teaching courses such as Signals and Systems, Circuit Analysis, Communication Systems, Digital Communications, Signal Processing in Mobile Networks, Spectral Estimation and Statistical Signal Processing. He is the author or co-author of more than 100 scientific publications among which: over 25 international journal papers, 21 internal reports or syllabus for both under graduate and graduate courses, 50 plus conference papers with proceedings, 14 conferences without proceedings, 6 invited presentations without proceedings and he is the editor of 3 books. He has supervised four PhDs and currently supervises other three PhD students.

6 Publications

Publications

[A.] Journal papers:

- [A1] RIX H., JESUS S., “Estimation du retard entre signaux de même forme”, *Compte Rendu de l’Académie des Sciences, Paris*, t.299, série II, no. 8, p.299, 1984.
- [A2] JESUS S., RIX H., “High resolution ECG analysis by an improved signal averaging method and comparison with a beat-to-beat approach”, *Journal of Biomedical Eng.*, vol.**10**, p.25-31, 1988.
- [A3] JESUS S. “Normal-mode matching localization in shallow water: environmental and system effects”, *Journal of the Acoustical Society of America*, vol.**90**(4), Pt.1, p. 2034-2041, 1991.
- [A4] JESUS S. “A mode-subspace approach for source localization in shallow water”, *Signal Processing*, vol.**28**, p. 117-122, 1992.
- [A5] JESUS S., “Broadband matched-field processing of transient signals in shallow water”, *Journal of the Acoustical Society of America*, vol.**93**(4), Pt.1, p. 1841-1850, 1993.
- [A6] FELISBERTO P., JESUS S.M., “Towed array beamforming during ship’s maneuvering”, *IEE on Radar, Sonar and Navigation*, vol.**143**, no. 3, p. 210-215, 1996.
- [A7] JESUS S.M., CAITI A. “Estimating geoacoustic bottom properties from towed array data”, *Journal of Computational Acoustics*, vol.**4**, no.3, p.273-290, 1996.
- [A8] CAITI A., JESUS S.M., “Acoustic estimation of seafloor parameters: a Radial Basis Functions approach.”, *Journal of the Acoustical Society of America*, vol.**100**(3), p. 1473-1481, 1996.
- [A9] CAITI A., JESUS S.M., KRISTENSEN A., “Geoacoustic seafloor exploration with a towed array in a shallow water area of the Strait of Sicily”, *IEEE Journal of Oceanic Engineering*, vol.**21**, no.4, p. 355-366, 1996.
- [A10] JESUS S.M., “Can maximum likelihood estimators improve genetic algorithm search in geoacoustic inversion ?”, *Journal of Computational Acoustics*, vol.**6**, no. 1 & 2, p. 73-82, 1998.
- [A11] JESUS S.M., PORTER M.B., STEPHAN Y., DEMOULIN X., RODRIGUEZ O., COELHO E., “Single hydrophone source localization”, *IEEE Journal of Oceanic Engineering*, vol.**25**, No.3, p. 337-346, 2000.
- [A12] RODRIGUEZ O.C., JESUS S.M., STEPHAN Y., DEMOULIN X., PORTER M.B., COELHO E., “Nonlinear soliton interaction with acoustic signals: focusing effects”, *Journal of Computational Acoustics*, vol.**8**, No.2, p.347-363, 2000.
- [A13] RODRIGUEZ O.C., JESUS S.M., ”Physical limitations of travel time based shallow water tomography”, *Journal of the Acoustical Society of America*, vol.**108**(6), p.2816-2822, 2000.
- [A14] RODRIGUEZ O.C., JESUS S.M., ”Range-Dependent Regularization of Travel Time Tomography based on Theoretical Modes”, *Acta Acustica united with Acustica*, Vol.**88**(5), p.760-762, 2002.
- [A15] PALMESE M., BOZZO A., JESUS S., ONOFRE J., PICCO P., TRUCCO A., “Observation of Acoustical Signal Fluctuations by Time-Frequency Analysis Methods”, *Acta Acustica united with Acustica*, Vol.**88**(5), p.653-657, 2002.
- [A16] SOARES C., SIDERIUS M., JESUS S.M., “Source localization in a time-varying ocean waveguide”, *Journal of the Acoustical Society of America*, vol.**112**(5), p. 1879-1889, 2002.

- [A17] CORRÉ V., JESUS S.M., “Tracking cold water of upwelling filaments in the ocean by matched field inversion”, *Acta Acustica united with Acustica*, Vol.**89**(4), p.604-613, 2003.
- [A18] SOARES C., JESUS S.M., “Broadband Matched-Field Processing: coherent and incoherent approaches”, *Journal of the Acoustical Society of America*, vol.**113**(5), p.2587-2598, 2003.
- [A19] FELISBERTO P., LOPES C. and JESUS S.M., “An autonomous system for ocean acoustic tomography”, *Sea Technology*, vol. **45**, No.4, pp-17-23, April 2004.
- [A20] MARTINS N., JESUS S.M., “Blind estimation of the ocean acoustic channel by time-frequency processing”, *IEEE Journal of Oceanic Engineering*, vol. **31**(3), pp.646-656, July 2006.
- [A21] JESUS S.M., SOARES C., COELHO E. and PICCO P., “An Experimental Demonstration of Blind Ocean Acoustic Tomography”, *Journal of the Acoustical Society of America*, **119**(3), pp. 1420-1431, March 2006.
- [A22] MARTINS N, SOARES C. and JESUS S.M., ”Environmental and Acoustic Assessment : the AOB concept”, *Journal of Marine Systems*, vol. **69**, pp. 114-125, January 2008.
- [A23] SOARES C., JESUS S.M. and COELHO E., “Environmental Inversion Using High-Resolution Matched-Field Processing”, *Journal of the Acoustical Society of America*, vol. **122**(6), p.3391-3404, December 2007.
- [A24] GOMES J., SILVA A. and JESUS S., “Adaptive spatial combining for passive time-reversed communications”, *Journal of the Acoustical Society of America*, Vol.**122**(6), p.3391-3404, December 2008.
- [A25] MARTINS N.E. and JESUS S.M., “Bayesian acoustic prediction assimilating oceanographic and acoustically inverted data”, accepted in *Journal of Marine Systems*, Vol.**78**, Supplement 1, pp.S349-S358, November 2009.
- [A26] P. SANTOS, O.C. RODRÍGUEZ, P. FELISBERTO and S.M. JESUS, “Geoacoustic inversion with a vector sensor array”, submitted to *Journal of the Acoustical Society of America*, **128**, No.5, pp.2652-2663, November 2010.