

Sérgio Ivan Lopes

Curriculum Vitae

Webpage:

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Email:

sergioilopes@gmail.com

Birth Date:

24.04.1979

Citizenship:

Portuguese



Professional Experience

Visiting Professor - February 2015 till now

ESTG/IPVC - Instituto Politécnico de Viana do Castelo, Portugal (<http://www.ipvc.pt>)

European Commission Expert - May/June 2016

H2020 Project Evaluator in the call ICT-01-2016: Smart Cyber-Physical Systems

Visiting Lecturer - March 2010 till January 2015

ESTG/IPVC - Instituto Politécnico de Viana do Castelo, Portugal (<http://www.ipvc.pt>)

R&D Engineer - April 2014 till December 2014

IT - Instituto de Telecomunicações

Description: R&D Engineer in the Project Panorama II.

Role: Filter design (DSP) for FPGA-based systems and embedded programming.

Tools used: Matlab, Simulink and MPLab X.

R&D Engineer - December 2013 till March 2014

IEETA - Institute of Electronics and Telematics Engineering of Aveiro, Portugal

Description: R&D Engineer at the AcousticAVE (Auralisation Models and Applications in Virtual Reality Environments) project funded by FCT. **Role:** Design and real-time DSP programming for the iOS platform. **Tools used:** Matlab, Openframeworks, Xcode, iOS.

R&D Engineer - January 2013 till November 2013

FEUP - Faculty of Engineering of the University of Porto, Portugal (www.fe.up.pt)

Description: R&D Engineer at the Audio Processing Lab for the ARTTS (Assistive Real-Time Technology in Singing) project funded by FCT. **Role:** Design real-time DSP audio algorithms using C++ and Objective-C++ for the iOS platform. **Tools used:** Matlab, Openframeworks, Xcode, iOS, Qt/QWt, Processing.

R&D Engineer - December 2010 till December 2012

Signal Processing Lab, IEETA/University of Aveiro

Description: R&D Engineer at the Pervasive Tourism project (funded by Agência de Inovação).

Role: Development of hybrid techniques and methodologies for high-accuracy indoor positioning. **Tools used:** Matlab, C/C++, Objective-C++, iOS, Openframeworks, Xcode, Eagle, MSP430, Code Composer Studio.

Trainer - September 2009 till December 2009

UNAVE-Associação para a Formação Profissional da Universidade de Aveiro

Role: Lecturer in the course "Introduction to Adobe Flex®".

Systems Engineer/Developer - April 2007 till November 2010

ClusterMedia Labs, Aveiro, Portugal (www.clustermedialabs.com).

Role: Development of DSP algorithms for semantic analysis of audiovisual contents, i.e. speaker identification and audio similarity tools. **Tools used:** Matlab, C++, MS Visual Studio 2008, MySQL, Ruby on Rails, Flash & Flex (AS3), RED5, Wowza.

Research Assistant - April 2005 till March 2007

Signal Processing Lab, IEETA/University of Aveiro

Description: Research Assistant at the CAMBADA project funded by Universidade de Aveiro.

Role: Development of obstacle localization/detection algorithms using sensor arrays. Real-time embedded systems design and DSP programming in C/C++ and Assembly. **Tools used:** Matlab, C/C++, Assembly, Code Composer Studio, TMS320F2812, OrCAD.

Store Assistant (part-time) - October 1999 till December 2004

EMI - Valentim de Carvalho, SA (www.valentimdecarvalho.pt).

Role: Sales, costumer adviser and record orders.

Educational Background

2018 - Post-Graduation in Project Management

Porto Business School, University of Porto, Portugal

Final Project: "Estratégia e boas práticas na Gestão de Projetos de I&D+I no IPVC"

2014 - PhD in Electrical Engineering

University of Aveiro, Portugal

Thesis: "In search of reliable centimeter-level indoor positioning: a smartphone-based approach" (Link to Repository: <http://ria.ua.pt/handle/10773/14100>).

Ph.D. Thesis awarded with the 1st place in the Fraunhofer Portugal Challenge 2015.

More info available at: http://www.challenge.fraunhofer.pt/en/the_challenge.html.

2009 - MSc in Biomedical Engineering (2 yrs)

University of Aveiro, Portugal

Field of specialization: Instrumentation, Signal and Medical Image.

Thesis: "Obstacle location for the blind using ultrasounds and sound spatialization techniques" (Link to Repository: <http://ria.ua.pt/handle/10773/3873>).

2004 - Degree in Electronics and Telecommunications Engineering (5 yrs)

University of Aveiro, Portugal

Final Project: Wireless Digital Audio and Image Intercom. (Link: <http://sergioivanlopes.com/gbcommunicator/>)

Academic and Research Activities

Lecturer in the following courses:

.: Polytechnic Institute of Viana do Castelo:

Sistemas Embebidos | Activity years : 2018
Teoria do Sinal | Activity years : 2018
Análise e Processamento de Sinal | Activity years : 2018
Arquitetura e Sistemas de Computadores | Activity years : 2017/18
Sistemas de Telecomunicações | Activity years : 2017/18
Processamento Digital de Sinal | Activity years : 2010/11/12/13/13/15/16/17/18
Sistemas Digitais e Microcontroladores II | Activity years : 2009/10/11/12/13/14/15/16/17
Microcontroladores | Activity years : 2013/14/15/16/17
Comunicações de Dados | Activity years : 2014/15/16/17
Arquitetura e Sistemas de Microprocessadores (ESTG-IPVC) | Activity years : 2014/15/16
Laboratórios de Electrónica (ESTG-IPVC) | Activity years : 2014/15/16
Sistemas Domóticos (ESTG-IPVC) | Activity years : 2014/15
Electrónica Analógica (ESTG-IPVC) | Activity years : 2015

.: University of Aveiro

Arquitectura de Computadores II (University of Aveiro) | Activity years : 2013/14
Aplicações para a Ciência e Engenharia (University of Aveiro) | Activity years : 2012/13
Processamento Digital de Sinal (University of Aveiro) | Activity years : 2011/12

R&D Projects:

.: On-going:

RnMonitor @ IPVC/Instituto de Telecomunicações [[link](#)] | FCT | Activity years : 2017-2019

.: Past:

SHOPANALYTICS@Instituto de Telecomunicações [[link](#)] | P2020 | Activity years : 2015-17
P&H Monitoring @ IPCV | Activity years: 2016/2017
PANORAMA II RÁDIO @ Instituto de Telecomunicações | ADI | Activity years : 2014
ACOUSTICAVE @ IEETA | FCT | Activity years : 2013/2014
ARTTS @ FEUP/UP | FCT | Activity years : 2013
PERVASIVE TOURISM @ IEETA/UA | ADI | Activity years : 2010-2012
CAMBADA @ IEETA/UA | UA | Activity years : 2005-2007

Reviewer in the following Journals:

IEEE Transactions on Mobile Computing, **IF: 6.8**
IEEE Transactions on Industrial Electronics, **IF: 6.5**
MDPI Sensors, **IF: 3.014**
MDPI Electronics, **IF: 2.110**
IEEE Transactions on Vehicular Technology, **IF: 1.978**
Journal of Intelligent & Robotic Systems, **IF: 0.81**

Publications

Books

D.F. Albuquerque, J.M.N. Vieira, **S.I. Lopes**, "Indoor Acoustic Simulator: A Modeling and Simulation Framework with Doppler Effect for Broadband Ultrasonic Applications.", LAP LAMBERT Academic Publishing, February 2017, ISBN-10: 3330042281, ISBN-13: 978-3330042285, [[Buy Book at Amazon](#)].

Journal Papers

D. F. Albuquerque, J. M. N. Vieira, **S. I. Lopes**, C. A. C. Bastos, P. J. S. G. Ferreira, "Indoor acoustic simulator for ultrasonic broadband signals with Doppler effect". Journal of Applied Acoustics, Volume 97, October 2015, Pages 140-151, ISSN 0003-682X, **IF: 1.269**, <http://dx.doi.org/10.1016/j.apacoust.2015.04.010>.

S. I. Lopes, J. M. N. Vieira, J. Reis, D. F. Albuquerque, N. B. Carvalho, "Accurate smartphone indoor positioning using a WSN infrastructure and non-invasive audio for TDoA estimation", Pervasive and Mobile Computing Journal, Volume 20, July 2015, Pages 29-46, ISSN 1574-1192, **IF: 2.325**, DOI: <http://dx.doi.org/10.1016/j.pmcj.2014.09.003>.

S. I. Lopes, J. M. N. Vieira, O. F. F. Lopes, N. A. S. Dias and P. R. M. Rosas, "MobiFree: A Set of Electronic Mobility Aids for the Blind". Procedia-Computer Science Journal, ISSN 1877-0509, Volume 14, Pages 10-19, 2012, DOI: <http://dx.doi.org/10.1016/j.procs.2012.10.002>.

Conference Papers

S.I. Lopes, F. Pereira, J.M.N. Vieira, N.B. Carvalho and A. Curado, "Design of Compact LoRa Devices for Smart Building Applications", SmartCity 360° Summit, GreeNets 2018 – 5th EAI International Conference on Green Energy and Networking, November 21-23, 2018, Guimarães, Portugal. (accepted in 16/10/2018)

S.I. Lopes, A. Cruz, P.M. Moreira, C. Abreu, J.P. Silva, N. Lopes, J. Vieira and A. Curado, "On the design of a Human-in-the-Loop Cyber-Physical System for online monitoring and active mitigation of indoor Radon gas concentration", 4th IEEE International Smart Cities Conference (ISC2) 2018, 16-19 of September, Kansas City, MO, USA. (to be indexed)

S.I. Lopes, J.P. Silva, A. Antão, A. Curado, "Short-Term Characterization of the Indoor Air Radon Concentration in a XII Century Monastery converted into a School Building", The 5th International Conference on Energy and Environment Research (ICEER 2018), Prague, Czech Republic, July 23-27, 2018. (to be indexed)

A. Curado, **S.I. Lopes**, "RnMonitor: Online Monitoring Infrastructure and Strategies for Active Indoor Air Radon Mitigation", CARIBMAT 2018: 2nd Caribbean Conference on Functional Materials, Cartagena de Indias (Colombia), February 6-9, 2018.

F. Pereira, P. Pinho, R. Gonçalves, N.B. Carvalho, J. Lobato, **S.I. Lopes**, "Antenna design for ultra-compact Bluetooth devices", 2017 IEEE International Symposium on Antennas and Propagation & USNC/URSI National Radio Science Meeting, San Diego, CA, USA, 2017, pp. 2619-2620, DOI: <https://doi.org/10.1109/APUSNCURSINRSM.2017.8073352>.

Curado, J.P. Silva, L. Carvalho, **S.I. Lopes**, "Indoor Radon Concentration Assessment in a Set of Single Family Houses: Case Study held in Barcelos, North of Portugal", Energy Procedia, Volume 136, October 2017, Pages 109-114, ISSN 1876-6102, DOI: <https://doi.org/10.1016/j.egypro.2017.10.295>.

J.P. Silva, A. Curado, G. Coelho, **S.I. Lopes**, "Indoor radon concentration assessment of an old granite manor house requalified as an office in the historic center of Viana do Castelo, Portugal", TEERAS2017: Third East-European Radon Symposium 2017, 15-19 May 2017, Sofia, Bulgaria, url: <http://teeras2017.com/pdf/program.pdf>.

D. F. Albuquerque, J. M. N. Vieira, **S. I. Lopes**, T. Aguilera and F. J. Álvarez, "High energy OFDM pulse design algorithm for acoustic ToF ranging and localization," 2016 International Conference on Indoor Positioning and Indoor Navigation (IPIN), Alcalá de Henares, Spain, 2016, pp. 1-6, <http://dx.doi.org/10.1109/IPIN.2016.7743698>.

D. F. Albuquerque, J. M. N. Vieira, **S. I. Lopes**, T. Aguilera and F. J. Álvarez, "Doppler resilient modulation in a CDMA-based acoustic local positioning system," 2016 International Conference on Indoor Positioning and Indoor Navigation (IPIN), Alcalá de Henares, Spain, 2016, pp. 1-8, <http://dx.doi.org/10.1109/IPIN.2016.7743611>.

S.I. Lopes, R. Bexiga, J.P. Araújo, J.L. Cerqueira, C. Abreu, C. Paredes and J.M. Alonso, 2016. Precision livestock farming for reproductive performance optimization: a survey. Food Futures – Ethics, Science & Culture. Edited by: I. Anna S. Olsson, Sofia M. Araújo and M. Fátima Vieira. EurSafe 2016, Porto, Portugal, 29 Sep - 1 Oct. Wageningen Academic Pub, 587-592, ISBN: 978-90-8686-288-7; e-ISBN:978-90-8686-834-6; <http://dx.doi.org/10.3921/978-90-8686-834-6>.

M. Migliardi, A. Merlo, **S. I. Lopes**, "Crowd-Sourcing an Ontology: Is It Feasible?", CCPS-2016: International Conference on Data Compression, Communication, Processing and Security, 22-23 September 2016, Salerno, Italy.

A. Curado, **S. I. Lopes**, "Impact of the human occupation on indoor radon concentration: a study based on in-situ measurements for a set of households in Alto-Minho, Portugal", BE-HAVE 2016 — 4th European Conference on Behaviour and Energy Efficiency, 8 – 9 September 2016, University of Coimbra, Portugal.

S. I. Lopes, C. Abreu, S. Lima. R. M. Alves, "WSN-based Vineyard Monitoring System for Automatic Managing of Grape Maturity", CONFTELE 2015, 10th Conference on Telecommunications, 17 – 18 September, Aveiro, Portugal.

S. J. Alves, F. A. Martins, A. I. Prata, **S. I. Lopes**, J. C. Duarte, P. Jesus, N. Silva, A. S. Oliveira and N. B. Carvalho, "High Performance Microwave Point-to-Point Link for 5G Backhaul with Flexible Spectrum Aggregation", IMS2015 International Microwave Symposium 2015, 17-22 May, Phoenix, USA, <http://dx.doi.org/10.1109/MWSYM.2015.7166817>.

S. I. Lopes, J. N. V. Vieira, D. Albuquerque, "Analysis of the Perceptual Impact of High Frequency Audio Pulses in Smartphone-based Positioning Systems". In Proceedings of the 2015 IEEE International Conference on Industrial Technology, Seville, Spain, 17-19th March 2015, pp.3398-3403, <http://dx.doi.org/10.1109/ICIT.2015.7125603>.

T. Aguilera, F. J. Álvarez, A. Sánchez, D. Albuquerque, J. N. V. Vieira and **S. I. Lopes**, "Characterization of the Near-Far Problem in a CDMA-Based Acoustic Localization System". In Proceedings of the 2015 IEEE International Conference on Industrial Technology, Seville, Spain, 17-19th March 2015, pp.3404-3411, <http://dx.doi.org/10.1109/ICIT.2015.7125604>.

G. Campos, P. Dias, J. M. N. Vieira, J. Santos, C. Mendonça, J. P. Lamas, N. Silva, **S. I. Lopes**, "Acousticave: Auralisation Models and Applications in Virtual Reality Environments". 45º Congreso Español de Acústica, 8 Congreso Ibérico de Acústica. European Symposium on Smart Cities and Environmental Acoustics, 29-31 October, Murcia, Spain.

S. I. Lopes, J. M. N. Vieira, G. Campos and P. Dias, "Sistema de Realidade Aumentada Áudio 3D para Dispositivos iOS". In Proceedings of the 12th Audio Engineering Society Brazil Conference (AES Brazil 2014); São Paulo, Brazil, 13-15 May, 2014, ISSN 2177-529X.

S. I. Lopes, J. M. N. Vieira, D. F. Albuquerque and N. B. Carvalho. "Accurate Smartphone Indoor Positioning Using Non-Invasive Audio". In Proceedings of the 2013 International Conference on Indoor Positioning and Indoor Navigation (IPIN'2013). Montbeliard, France, 28-31 Oct 2013.

D. F. Albuquerque, J. M. N. Vieira, **S. I. Lopes**, C. A. C. Bastos and P. J. S. G. Ferreira. "OFDM Pulse Design with Extremely Low PAPR for Ultrasonic Location and Positioning Systems". In Proceedings of the 2013 International Conference on Indoor Positioning and Indoor Navigation (IPIN'2013). Montbeliard, France, 28-31 October 2013.

S. I. Lopes, A. Oliveira, J. M. N. Vieira, G. Campos, P. Dias and R. Costa, "Real-Time Audio Augmented Reality System for Pervasive Applications". In Proceedings of the 11th Audio Engineering Society Brazil Conference (AES Brazil 2013); R.R.A.Faria (ed.); São Paulo, Brazil, 7-9 May, 2013, ISSN 2177-529X.

S. I. Lopes, J. M. N. Vieira and D. Albuquerque, "High Accuracy 3D Indoor Positioning Using Broadband Ultrasonic Signals". Trust, Security and Privacy in Computing and Communications (TrustCom), 2012 IEEE 11th International Conference on, pp.2008-2014, 25-27 June, 2012, <http://doi.ieeecomputersociety.org/10.1109/TrustCom.2012.172>

S. I. Lopes, J. M. N. Vieira, O. F. F. Lopes, N. A. S. Dias and P. R. M. Rosas. MobiFree: A Set Of Electronic Mobility Aids For The Blind. 4th International Conference on Software Development for Enhancing Accessibility and Fighting Info-exclusion (DSAI2012). Douro Region, Portugal, 19-22 July, 2012.

D. F. Albuquerque, J. M. N. Vieira, **S. I. Lopes**, C.A.C. Bastos and P. J. S. G. Ferreira, "Indoor Ultrasonic Transfer Function for Moving Objects". In Proceedings of the 2011 International Conference on Indoor Positioning and Indoor Navigation (IPIN'2011); Moreira, Adriano J. C.; Meneses, Filipe M. L. (eds.), Guimarães, Portugal, 21-23 Setembro 2011, ISBN: 978-972-8692-63-6.

D. F. Albuquerque, J. M. N. Vieira, **S. I. Lopes**, C. A. C. Bastos and P. J. S. G. Ferreira, "Indoor Ultrasonic Simulator for Moving Objects Using Delay Filters". In Proceedings of the 2011 International Conference on Indoor Positioning and Indoor Navigation (IPIN'2011); Moreira, Adriano J. C.; Meneses, Filipe M. L. (eds.), Guimarães, Portugal, 21-23 Setembro 2011, ISBN: 978-972-8692-63-6.

D. Almeida, J. M. N. Vieira, **S. I. Lopes**, Guilherme Campos. Sistema de Realidade Aumentada Áudio. 13º Encontro da Associação Portuguesa de Engenharia de Áudio (APEA), Secção Portuguesa da Audio Engineering Society (AES) . EESMAE/IPP Porto-Portugal, 7 e 8 de Outubro, 2011.

C. Colaço, **S. I. Lopes**, C. Abreu. DSP-based Multi-channel Stethoscope. In the 12th Meeting of the Portuguese Association of Audio Engineering (APEA), Portuguese Section of the Audio Engineering Society (AES). Aveiro, Portugal, 8-9 October 2010.

J. M. N. Vieira, **S. I. Lopes**, C. A. C. Bastos, P. N. Fonseca, "Ultrasound sensor array for robust location.", In Sapaty, P and Filipe, J, editor, Multi-Agent Robotic Systems, Proceedings, pages 84–93, 2007. 3rd International Workshop on Multi-Agent Robotic Systems, Angers, FRANCE, MAY, 2007, ISBN: 978-972-8865-85-6, <http://dx.doi.org/10.5220/0001634200840093>.

J. M. N. Vieira, **S. I. Lopes**, C. A. C. Bastos, P. N. Fonseca. Sistema de localização utilizando ultra-sons. Encontro Científico do Festival Nacional de Robótica 2006. Guimarães, Portugal, April 2006.

J. M. N. Vieira, **S. I. Lopes**, C. C. Bastos, P. N. Fonseca. Sistema de localização mútua para robots utilizando ultra-sons. In 3as Jornadas de Engenharia Electrónica e Telecomunicações e de Computadores - JETC05. Lisboa, Portugal, 2005.

Posters

S. I. Lopes, R. Bexiga, J.P. Araújo, J.L. Cerqueira, C. Abreu, C. Paredes and J.M. Alonso, 2016. Precision livestock farming for reproductive performance optimization: a survey. Comunicação em poster no 13th Congress of the European Society for Agricultural and Food Ethic, EurSafe 2016, FLUP, Porto, Portugal, 29 sep-1 oct.

S. I. Lopes, J. M. N. Vieira, N. B. Carvalho. "Accurate Smartphone Indoor Positioning using a WSN Infrastructure and Non-Invasive Audio for TDoA Estimation". Research Day 2014, Universidade de Aveiro, 03 de Junho, 2014.

S.I. Lopes, J.M.N. Vieira, "Audio Augmented Reality System for Museums", Bolsa de inovação em Turismo da 2ª Conferência Internacional INVTUR 2012. Universidade de Aveiro, 16 a 19 de Maio, 2012.

Software Published

SingingStudio App - March 2014

AppStore Link: <https://itunes.apple.com/us/app/singingstudio/id805620083?mt=8>

Masterpitch App - November 2013

App Webpage: <http://www.masterpitchapp.com>

AppStore Link: <https://itunes.apple.com/pt/app/masterpitch/id739060431?mt=8>

Awards and Achievements

October 2015

1st place in the Fraunhofer Portugal Challenge 2015 — "Research with Practical Utility" in the Ph.D. Category. Link: http://www.challenge.fraunhofer.pt/en/the_challenge.html

December 2014

Distinction, PhD in Electrical Engineering, Universidade de Aveiro, Portugal.

November 2012

Semi-finalist in the 3rd Edition of the ISTE-MIT Building Global Innovators Program, with the project "Cérebro-AP". Link: http://buildingglobalinnovators.com/pages/teams/ed3/posters/Cerebro-AP_Project_brief_description.EN.pdf

April 2007

ESPA Award - Excellence in Signal Processing Award given by Texas Instruments.
Link: <http://www.ti.com/europe/espa/hof.htm>

Organizations

IEEE Member Nº 91275169 (Institute of the Electrical and Electronics Engineers).