Luis F. Teixeira

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Current position

Assistant Professor, Faculdade de Engenharia, Universidade do Porto

Areas of specialization

computer vision, image processing, machine learning.

Education

2005–2009 PhD in Electrical and Computer Engineering, Universidade do Porto
Title: Contributions for the Automatic Description of Multimodal Scenes
Advisor: Prof. Luis Corte-Real
Approved by unanimous vote

2002–2004 MSc in Computer Networks and Communication Services, Universidade do Porto
Title: Editing and Description Framework for Video Objects
Advisor: Prof. Luis Corte-Real
Muito Bom (Very good, top grade) with a first-year classification of 18/20

1996–2001 *Licenciatura* in Electrical and Computer Engineering, Universidade do Porto
5-year degree – Major in Telecommunications
Final classification of 17/20 (2nd among 116 finalists)

Work experience

2013– Assistant Professor at Dep. of Informatics Engineering (DEI) of FEUP

2009–2013 Invited Assistant Professor at Dep. of Informatics Engineering (DEI) of FEUP
Coordinates and teaches courses and supervises MSc and PhD students.

2008–2013 Senior Scientist at Fraunhofer AICOS
Member of the Scientific Board. Collaborates in industry, European and internal projects with management, and research and development responsibilities. Co-supervises projects by FEUP MSc students.

2006 Visiting Researcher at University of Victoria
Collaborated in the Marsyas project with the supervision of Prof. George Tzanetakis.

2001–2008 Researcher at INESC Porto
Collaborated in European projects and internal projects with research and development responsibilities. Co-supervised projects by FEUP MSc/Licenciatura students.

2004–2006 Teaching Assistant at Dep. of Electrical and Computer Engineering (DEEC) of FEUP
Assisted Programming laboratory classes - Informatics Engineering course.

2001 Junior Researcher at INEB
Collaborated in an internal project of the ARSIS group with development responsibilities.

Grants, honours & awards

2014	Pedagogical recognition - top 10% of the teachers, according to the evaluation done by the students, FEUP – Universidade do Porto, 2014
2013	Pedagogical recognition - top 10% of the teachers, according to the evaluation done by the students, FEUP – Universidade do Porto, 2013
2004–2008	Doctoral scholarship, FCT - Portuguese Foundation for Science and Technology
2003–2004	Master's scholarship, FCT - Portuguese Foundation for Science and Technology
2001	Top 10% (2nd among 116 finalists) of the Licenciatura in ECE course, FEUP

Publications & talks

Theses

2009   2. Luis F. Teixeira. *Contributions for the Automatic Description of Multimodal Scenes.* PhD thesis, Faculdade de Engenharia da Universidade do Porto, Portugal, 2009.

2004   1. Luis F. Teixeira. Editing and description framework for video objects. Master's thesis, Faculdade de Engenharia da Universidade do Porto, Porto, Portugal, July 2004.

Proceedings

2011   1. Jaime S. Cardoso, Luis F. Teixeira, and Pedro Quelhas, editors. *Portuguese Conference on Pattern Recognition*, Porto, Portugal, October 2011. APRP.

Journal articles

2013   5. Pedro Carvalho, Telmo Oliveira, Lucian Ciobanu, Filipe Gaspar, Luis F. Teixeira, Rafael Bastos, Jaime S. Cardoso, Miguel S. Dias, Luís Corte-Real. Analysis of object description methods in a video object tracking environment. *Machine Vision and Applications*, 2013, 24(6);1149–1165, August 2013.

2009   4. Jaime S. Cardoso, Pedro Carvalho, Luis F. Teixeira, and Luis Corte-Real. Partition-distance methods for assessing spatial segmentations of images and videos. *Computer Vision and Image Understanding*, 113(7):811–823, July 2009.

   3. Luis F. Teixeira and Luis Corte-Real. Video object matching across multiple independent views using local descriptors and adaptive learning. *Pattern Recognition Letters*, 30(2):157–167, January 2009.

2007   2. Luis F. Teixeira, Jaime S. Cardoso, and Luis Corte-Real. Object segmentation using background modelling and cascaded change detection. *Journal of Multimedia*, 2(5):55–64, September 2007.

   1. M. J. Cardoso et al. Turning subjective into objective: The BCCT.core software for evaluation of cosmetic results in breast cancer conservative treatment. *The Breast*, 16(5):456–461, October 2007.

International Conferences

2014   15. Samaneh Khoshrou, Jaime S. Cardoso, and Luis F. Teixeira. Active Learning from Video Streams in a Multi-Camera Scenario. In *Proceedings of the International Conference on Pattern Recognition*, Stockholm, Sweden, August 2014. (accepted)

2013   14. João Marques, Ana Vasconcelos, and Luis F. Teixeira. Senior-Driven Design and Development of Tablet-Based Cognitive Games. In *Proceedings of the International Conference on Wearable Micro and Nano Technologies for Personalized Health*, pages 133–138, Tallinn, Estonia, June 2013.

2012 13. Luis F. Teixeira, Pedro Carvalho, Jaime S. Cardoso, and Luis Corte-Real. Automatic description of object appearances in a wide-area surveillance scenario. In *Proceedings of the IEEE International Conference on Image Processing*, pages 1609–1612, Orlando, FL, September 2012.

12. Ana Vasconcelos, Paula Alexandra Silva, João Caseiro, Francisco Nunes, and Luis F. Teixeira. Designing tablet-based games for seniors: the example of cogniplay, a cognitive gaming platform. In *Proceedings of the International Conference on Fun and Games*, pages 1–10, Toulouse, France, September 2012.

2011 11. Pedro Teixeira, Francisco Nunes, Paula Silva and Luis F. Teixeira. Mover – Activity Monitor and Fall Detector for Android. In *Proceedings of the Workshop on Mobile Wellness at Mobile HCI 2011*, September, 2011.

10. Diogo Junior and Luis F. Teixeira. Location Based Services for Everyone. In *Proceedings of the Workshop on Mobile Wellness at Mobile HCI 2011*, September, 2011.

2009 9. Jaime S. Cardoso, Ricardo Sousa, Luis. F. Teixeira, and M. J. Cardoso. Breast contour detection with stable paths. *Communications in Computer and Information Science*, 25:439–452, 2009.

2008 8. Luis F. Teixeira, Luis G. Martins, Mathieu Lagrange, and George Tzanetakis. "MarsyasX: multimedia dataflow processing with implicit patching. In *Proceedings of ACM International Conference on Multimedia*, pages 873–876, Vancouver, BC, October 2008.

7. George Tzanetakis, Luis G. Martins, Luis F. Teixeira, Carlos Castillo, Randy Jones, and Mathieu Lagrange. Interoperability and the marsyas 0.2 runtime. In *Proceedings of the International Computer Music Conference*, Belfast, Northern Ireland, August 2008.

6. Jaime S. Cardoso, Luis F. Teixeira, and Maria J. Cardoso. Automatic breast contour detection in digital photographs. In *Proceedings of International Conference on Health Informatics*, pages 91–98, Funchal, Portugal, January 2008.

5. Filipe Coelho, Luis Baptista, Luis F. Teixeira, and Jaime S. Cardoso. Automatic system for the recognition of amounts in handwritten cheques. In *International Conference on Signal Processing and Multimedia Applications*, pages 320–324, Porto, Portugal, July 2008.

4. Daniel Duraes, Luis F. Teixeira, and Luis Corte-Real. Building modular surveillance systems based on multiple sources of information – architecture and requirements. In *International Conference on Signal Processing and Multimedia Applications*, pages 314–319, Porto, Portugal, July 2008.

2007 3. Luis F. Teixeira and Luis Corte-Real. Cascaded change detection for foreground segmentation. In *Proceedings of IEEE Winter Vision Meeting - Motion and Video Computing*, Austin, TX, February 2007.

2006 2. Mathieu Lagrange, Luis G. Martins, Luis F. Teixeira, and George Tzanetakis. Speaker segmentation of interviews using integrated video and audio change detections. In *Proceedings of International Workshop on Content-Based Multimedia Indexing*, pages 219–226, Bordeaux, France, June 2006.

1. Luis F. Teixeira and Luis Corte-Real. Integrated multimedia authoring and description framework. In *Proceedings of the International Workshop on Image Analysis for Multimedia Interactive Services*, pages 265–268, Incheon, South Korea, April 2006.

Invited Talks / Seminars

Computer Vision Academy, Enermeter, October 2013
Augmented Reality Seminar, Portuguese Catholic University, School of Arts, July 2011
Computer Vision and Multimodal Interfaces Seminar, Portuguese Catholic University, School of Arts, March 2010

Projects

2011–2014   **ENSURE**

European project focusing on the long term usability problem of the digital preservation of data that is caused by the huge amounts of data produced or controlled by an organization.

Tasks: co-principal investigator at FEUP (starting in January 2013).

2012–2013   **AROS**

Small research project sponsored by SAPO Labs that aims to develop a system that can recognize objects using cameras incorporated in smartphones or other mobile devices.

Tasks: principal investigator.

2010   **AICOS-Tablet**

Industry project for a major Telco company that was looking to develop a concept and create prototypes for validation.

Tasks: managed task consisting on the development of a prototype application.

2009   **AICOS-Box**

Industry project for a major Telco company that was looking to develop a concept and create prototypes for validation.

Tasks: managed project (3 partners) and developed software for the system.

2007–2010   **DR-Vids**

Project funded by FCT, with the reference PTDC/EEA-ELC/69394/2006, on reconfigurable systems applied to real time video processing.

Tasks: managed task consisting on the development of an algorithm for background/segmentation.

2004–2009   **IST NoE VISNET I and II**

European project on audiovisual systems and algorithms.

Tasks: develop segmentation and tracking algorithm for visual surveillance systems.

2003–2004   **IST NUGGETS**

European project on distributed systems for digital television.

Tasks: developed MXF SDK support, integrated in a team of 3 elements.

2003   **IST ASSET**

European project on distributed systems for digital television.

Tasks: developed metadata handling SDK in C++, integrated in a team of 3 elements.

2002   **MXF SDK**

Project with IRT (Institut für Rundfunktechnik) on distribution formats for digital television.

Tasks: MXF SDK implementation in C++, integrated in a team of 5 elements.

2002–2003   **IST METAVISION**

European project on distributed systems for digital television.

Tasks: developed distributed audiovisual file management system in C++, integrated in a team of 3 elements.

2001–2002   **ORBIT**

Industry project for BBC R&D Video processing on distributed systems for digital television.

Tasks: developed CORBA modules in C++ and video annotation GUI in JAVA, integrated in a team of 15 elements.

Teaching

Courses

2011/2012 –   Programming 2, ECE MSc, coordinator
2013/2014   Programming 1, ECE MSc, coordinator
Introducion to Programming, Multimedia MSc, coordinator
Computer Vision, IE MSc, instructor
Computer Vision, MAP-i Doctoral Programme, instructor

2010/2011	Programming 2, ECE MSc, coordinator
	Programming 1, ECE MSc, coordinator
	Computer Laboratory, IE MSc, instructor
2009/2010	Programming 2, ECE MSc, instructor
	Programming 1, ECE MSc, instructor
	Database and Web Applications Laboratory, IE MSc, instructor
2005/2006	Programming, IE MSc, teaching assistant
2004/2005	Programming II IE *Licenciatura*, teaching assistant

ECE - Electrical and Computer Engineering; IE - Informatics Engineering

Supervision

PhD students

1. Samaneh Khoshrou, MAP-tele, "Learning in Evolving Video Streams", co-supervisor with Professor Jaime Cardoso, 2014 (expected).

MSc students

21. João Pedro Fonseca Teixeira, ECE MSc FEUP, "Classification of Lung Function on a Smartphone App", co-supervised by Professor Miguel Coimbra, 2014 (expected).
20. Ivo Filipe Valente Mota, ECE MSc FEUP, "Olhó-passarinho: uma extensão do TweeProfiles para fotografias", co-supervised by Professor Carlos Soares, 2014 (expected).
19. André Filipe do Couto Maia, ECE MSc FEUP, "Facial Expressions in Sign Language Videos", co-supervised by Ricardo Sousa, 2014 (expected).
18. Eduardo Luís Almeida Rodrigues Barbosa, Informatics Engineering MSc FEUP, "Efficient Database Image Search", co-supervised by Rui Marques, 2014 (expected).
17. Maria Inês Coutinho Vigário Rodrigues, Bioengineering MSc FEUP, "Body and Facial Expressions for Socio-Emotional Behaviour Analysis", co-supervised by Eduardo Marques, 2014 (expected).
16. Ana Catarina Cardoso Salgueiro Fernandes, Master in Multimedia FEUP, "Optimizing the interpretation of FUSAMI data for usability analysis", co-supervised by Ana Barros, 2014 (expected).
15. Daniel Gomes Rodrigues, Master in Multimedia FEUP, "Produtividade na Organização e Gestão de Conteúdos Virtuais (Productivity in the organization and management of virtual contents)", 2014 (expected).
14. Joel Pedro Pereira Fonseca, Master in Multimedia FEUP, "Software Autocrítico no âmbito da Composição e Enquadramento no Ato Fotográfico (Auto-critical Software in the Scope of Composition and Framing in Photography)", 2014 (expected).
13. Ana Luísa Pires Magalhães Marques, Informatics Engineering MSc FEUP, "Interface com o utilizador para sistema de análise e segregação de eventos sonoros em sinais musicais (User interface for the analysis and segregation of sound events in music signals)", 2014
12. Ivo Almeida Rodrigues, Informatics Engineering MSc FEUP, "Interface baseada em objectos visuais usando dispositivos móveis - aplicação a serviço de cinema (Interface based on visual objects using smartphones - application to a cinema database service)", 2014
11. Pedro Boloto Chambino, Informatics Engineering MSc FEUP, "Android-based implementation of Eulerian Video Magnification for vital signs monitoring", co- supervised by Luis Rosado, 2013.
10. José Pedro da Silva Couto e Sá, ECE MSc FEUP, "Multi Person Tracking in Real-time Video Streams", co-supervised by Rui Marques, 2013

9. João Carlos Almeida Antunes, Master in Multimedia FEUP, "Visualization of Complex Information - Application to a Mobile Usage Logging Tool (final title to be defined)", 2013

8. João Pedro de Macedo Marques, Informatics Engineering MSc FEUP, "User-Driven Design, Development and Evaluation of a Tablet-Based Cognitive Gaming Platform for Seniors", co-supervised by Ana Vasconcelos, 2013.

7. Hugo Filipe Coelho Duarte Teixeira, ECE MSc FEUP, "Recognition of Visual Objects using Mobile Devices", 2013.

6. João Figueiredo Cevada, Informatics Engineering MSc FEUP, "Analysis, design and evaluation of smartphone applications for Parkinson-affected persons", co-supervised by Professor Paula Alexandra Silva, 2012.

5. Inês Vale Ferreira, IE MSc FEUP, 'Real-time Audiovisual and Interactive Applications for Desktop and Mobile Platforms", co-supervised by Professor Luis Gustavo Martins, 2012.

4. Ana Filipa Ferreira Vasconcelos, IE MSc at FEUP, "The use of tablets as a gaming platform for older adults", co-supervised by Professor Paula Alexandra Silva, 2011.

3. João Manuel Vieira Caseiro, IE MSc at FEUP, "The Android Tablet as a Game Development Platform", co-supervised by Professor Paula Alexandra Silva, 2011.

2. Ricardo Jorge Azevedo Moutinho, IE MSc at FEUP, "A mobile phone navigator for older adults", co-supervised by Diogo Junior, 2011.

1. Ricardo Torgal Dias Duarte, ECE MSc at FEUP, "Harpa Laser para Controle de Síntese Sonora" (Laser Harp for Sound Synthesis Control), co-supervised by Professor Luis Gustavo Martins, 2011.

Undergraduate and MSc students (as supervisor at the R&D institute)

7. Pedro Miguel Correia Teixeira, IE MSc at FEUP, "Image search and navigation of photo collections", co-supervisor with Professor Jorge Alves, 2010.

6. Diogo Dias Júnior, IE MSc at FEUP, "Mobile-based context aware services framework", co-supervisor with Professor Jorge Alves, 2010.

5. Luís António Alves Ferreira, IE MSc at FEUP, "Hyperbolic tree visualization on mobile devices", co-supervisor with Professor Ademar Aguiar, 2009.

4. Daniel Filipe Martins Durães, ECE MSc at FEUP, "Arquitectura de sistema de vigilância integrada" (Integrated surveillance system architecture), co-supervisor with Professor Luís Corte-Real, 2008.

3. Guilherme Artur Conceição Capela, IE MSc at FEUP, "Reconhecimento de símbolos musicais manuscritos na framework Gamera" (Recognition of handwritten musical symbols in the framework Gamera), co-supervisor with Professor Jaime S. Cardoso, 2008.

2. Filipe Emanuel Amaro Coelho, MSc IE at FEUP, "Sistema automático de reconhecimento do montante de um cheque" (Automatic system for the recognition of check amounts), co-supervisor with Professor Jaime S. Cardoso, 2008.

1. Moisés Emanuel Adrega Medeiros, final year project Lic. ECE at FEUP, 'Descrição e manipulação de objetos para composição de multimédia" (Description and manipulation of objects for multimedia composition), co-supervisor with Professor Luís Corte-Real, 2005.

Advising – PhD Committee Member

1. Rui Vítor Pires Fernandes, FEUP, "Knowledge and context-based strategies for 3D video content adaptation decision", supervised by Professor Teresa Andrade, 2013 (expected).

Scientific and institutional management

2009–2013   Member of the Scientific Board of Fraunhofer Portugal since its creation in the beginning of 2009.

2010   President of the Scientific Board of Fraunhofer Portugal during 2010.

2010–2011   Member of the Department of Informatics Engineering Council between July 2010 and March 2011.

Other activities

Reviewer for scientific publications and conferences

Pattern Recognition Letters

International Journal of Imaging

Conferences: ICIAR, ICMC, EUSIPCO

Organising comittees of conferences and other events

IbPRIA 2013 – Iberian Conference on Pattern Recognition and Image Analysis

AERFAISS 2012 – AERFAI Summer School on Pattern Recognition in Multimodal Human Interaction

RECPAD 2011 – Portuguese Conference on Pattern Recognition

Scientific comittees of conferences

Chairman of the Scientific Steering Comittee of pHealth 2012 – International Conference on Wearable Micro and Nano Technologies for Personalized Health

Contributions to open-source projects

Marsyas/MarsyasX [http://marsyas.sf.net] – Several core contributions to the Marsyas project, an audio processing library; main developer of MarsyasX, an evolution of Marsyas toward multimodal processing.

Personal skills and competences

Languages

Portuguese (mother-tongue), English (proficient), French (basic), Finnish (basic)