João Carreira

Curriculum vitae

Summary

Electrical Engineer, specialist in video coding, transmission and quality evaluation. Versatile and very enthusiastic individual always seeking new challenges. Main interests include video coding, software development, embedded systems and operating systems.

João Filipe Monteiro Carreira
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Work experience

November 2008 – Present

Instituto de Telecomunicações - IT

Research fellow

2013-2017: Develop techniques to improve the error resilience and error concealment of the HEVC standard.
2009-2012: Subjective quality evaluation of 3D video quality affected by transmission errors. Development of error concealment techniques for 3D video decoders complaint with H.264/MVC.
2008-2009: Research on the state of art technologies for digital television broadcast; performance evaluation of DVB-T transmission using R&S SFE and R&S DVM400.

February 2017 – Present

ESTG, Polytechnic Institute of Leiria

Invited Assistant Professor

Professor of Electronics Engineering Department.
1Contents: C/C++ language, embedded programming, electronics design.

January 2014 – March 2014

University of Surrey

Laboratory Assistant

Lecturer on practical based course work of software and hardware development.
Contents: C language, microcontrollers programming.

October 2011 – July 2012

ESTG, Polytechnic Institute of Leiria

Laboratory Assistant

Provide support to students on the practical courses.
Contents: C language, microcontrollers programming.

Software skills

Languages	C/C++, bash, Matlab, Python, LaTeX, HTML, VHDL, Ladder
IDE	Eclipse, Visual Studio
Tools	FFmpeg, KDE,QT framework, shell tools (sed, awk, grep), git, svn, ssh, gcc, autotools, CMake, valgrind
OS	Gentoo, Ubuntu, Windows
Engineering	MPLAB, Xilinx, LabVIEW, Simatic Manager, Proteus, WinProp, HFSS, AutoCAD
Codecs	HM (HEVC), HTM (3D-HEVC), JM (H.264) reference software

Education

January 2015 – Present

IDT, Loughborough University London

PhD Student in Electrical Engineering

Thesis title: Error resilience and error concealment for High Efficiency Video Coding Standard
Supervisors: Ahmet Kondoz, Erhan Ekmekcioglu - IDT; Pedro Assunção, Sérgio Faria - IT.

Setember 2010 - December 2012

ESTG, Polytechnic Institute of Leiria

Masters in Electrical Engineering - Telecommunications

Thesis title: "Subjective Quality Evaluation and Frame Loss Concealment in 3D Video".
Supervisors: Pedro Assunção, Sérgio Faria and Nuno Rodrigues.
Classification: 18 out of 20.

September 2007 - July 2010

ESTG, Polytechnic Institute of Leiria

Bachelor's in Electrical Engineering – Electronics and Telecommunications

Final project title: "DVB-T3D - Transmission of 3D Television over a DVB-T Channel".
Supervisors: Pedro Assunção and Sérgio Faria.
Classification: 17 out of 20.

Technical skills

- Research and development;
- Image and video compression;
- 2D/3D video transmission and quality evaluation;
- Experience with programmable devices (e.g., FPGA, Microcontrollers, Arduino);
- Experience with Linux operating system and networking concepts.
- Experience with software configuration management (SCM);

Communication skills

Portuguese	Native speaker
English	Oral: fair – Written: good

IELTS - International English Language Testing System: Average score of 7.0 out of 10 (2013).

Additional Information

Interests	Software development; Embedded systems; Open-source software; Helping local non-profit organisations
Driving license	A, B

Organisational skills

- Experience with team work;
- Ability to solve problems;
- Logical and practical;

Publications

Journal publications:

- J. Carreira, P. Assuncao, S. Faria, E. Ekmekcioglu, and A. Kondoz, "A two-stage approach for robust hevc coding and streaming," *IEEE Transactions on Circuits and Systems for Video Technology*, Apr. 2017

International conference publications:

- J. Carreira, P. Assuncao, S. Faria, E. Ekmekcioglu, and A. Kondoz, "A robust video encoding scheme to enhance error concealment of intra frames," in *IEEE International Conference on Circuits and Systems (ISCAS)*, May 2017, pp. 1–5
- J. Carreira, P. Assuncao, S. Faria, E. Ekmekcioglu, A. Kondoz, and H.Lim, "Reference picture selection using checkerboard pattern for resilient video coding," in *IEEE International Conference on Visual Communications and Image Processing (VCIP)*, Dec. 2015, pp. 1–5
- J. Carreira, E. Ekmekcioglu, A. Kondoz, P. Assuncao, S. Faria, and V. D. Silva, "Selective motion vector redundancies for improved error resilience in HEVC," in *IEEE International Conference on Image Processing (ICIP)*, Oct. 2014, pp. 2457–2461
- J. Carreira, V. D. Silva, E. Ekmekcioglu, A. Kondoz, P. Assuncao, and S. Faria, "Dynamic motion vector refreshing for enhanced error resilience in HEVC," in *22nd European Signal Processing Conference (EUSIPCO)*, Sep. 2014, pp. 281–285
- J. Carreira, P. Assuncao, N. Rodrigues, and S. Faria, "Frame loss concealment for 3D video decoders based on disparity-compensated motion field," in *3DTV-Conference: The True Vision - Capture, Transmission and Display of 3D Video (3DTV-CON)*, Oct. 2012, pp. 1–4
- L. Pinto, J. Carreira, S. Faria, N. Rodrigues, and P. Assuncao, "Subjective quality factors in packet 3D video," in *Third International Workshop on Quality of Multimedia Experience (QoMEX)*, Sep. 2011, pp. 149–154
- J. Carreira, L. Pinto, N. Rodrigues, S. Faria, and P. Assuncao, "Subjective assessment of frame loss concealment methods in 3D video," in *Picture Coding Symposium (PCS)*, Dec. 2010, pp. 182–185

National conference publications:

- J. Carreira, S. Faria, P. Assuncao, E. Ekmekcioglu, and A. Kondoz, "Error resilience analysis of motion vector prediction in HEVC," in *Conference on Telecommunications (Conftele)*, Oct. 2015, pp. 1–4
- J. Carreira, N. Rodrigues, S. Faria, and P. Assuncao, "Frame Loss Concealment for H.264/AVC Stereo Video Decoders," in *Conference on Telecommunications (Conftele)*, May 2013, pp. 1–4