Andrés Romero Mier y Terán

Curriculum Vitae

Personal information

Date of birth: August 5th 1981
Nationality: mexican
Marital status: married without children

PhD in Computer Vision

2010-2013	**Laboratoire de Recherche en Informatique, Université Paris-Sud XI**, *Paris, France*.
Title	*Real-time tracking algorithms for surveillance applications in embedded systems.*
Project	ITEA/Spy european project.
Supervisors	Lionel Lacassagne and Michèle Gouiffés.
Mastered computer vision skills	Optical flow, tracking in Riemannian manifolds (covariance models), SIFT/SURF key-point detection and matching.
Mastered computer skills	Algorithm parallelization (OpenMP) and vectorization (SIMD), extensive experience coding libraries in C and wrapping them to Python using SWIG.
Teaching assistant activity	SIMD code vectorization workshops.

Signal processing master

2005-2007	**Instituto Politécnico Nacional, ESIME Culhuacán**, *Mexico City, Mexico*.
Project title	*Acoustic active noise controllers in TMS320C6713DSK platforms.*
Supervisor	Héctor Pérez Meana

Telecommunications engineering

2001-2006	**Universidad Nacional Autónoma de México(UNAM)**, *Mexico City, Mexico*.
Project title	*Acoustic active noise cancellation.*
Supervisor	Bohumil Psenicka

Professional experience

Teaching and research

2013-now	**Invited researcher and teacher**, *Orsay Faculty of Sciences, Paris-Sud XI University*, Paris, France.
2006-2009	**DSP laboratory teacher**, *Engineering Faculty, UNAM*, Mexico City, Mexico.
2005	**Analog and digital filtering laboratory teacher**, *Engineering Faculty, UNAM*, Mexico City, Mexico.

Public sector

2007-2009	**Code developer**, *Computer security department, DGSCA, UNAM*, Mexico City, Mexico. Emergency response team (CERT) system development.
2004	**Code developer**, *Electoral Institute of Oaxaca,Mexico* , Oaxaca,Mexico. Pre-electoral system developer, 2004 deputies and governor elections.

Private Sector

2007	**Operation engineer**, *Qualcomm, Omnitracs*, Mexico City, Mexico. Satellite and GPS surveillance system operator

Languages

	Spanish, *Mothers tongue.*
TOEFL 613 points	**English**, *Reading: 100%, writing: 100% and spoken interaction: 90%.*
TCF niveau B2	**French**, *Reading: 100%, writing: 80% and spoken interaction: 85%.*

Computer skills and competences

Languages	Python, Matlab, C, C++, PHP, Python, Perl, Java, JavaScript, Ajax	**Operating systems**	Unix, Linux, Windows, OpenVMS
Code optimization and parallelization	OpenMP, SIMD et GPU	**Mastered libraries**	OpenCV, OpenGL,PyGame,Matplotlib
Architectures	Intel MMX-SSE2-SSSE4, PICS, FPGA, DSP's (C25, C30, C5000 et C6000), ARM, Motorola 68HC11	**Tools**	CMake, InkScape, GIMP, VLC, Openshot
Databases	PostgreSQL,MySQL,SQL Server		

Research interests

Computer vision techniques	Tracking and object recognition using textural and color information.
Machine learning interests	Classification in Riemannian manifolds, SVM's, neural networks, random trees, ferns.
Computer vision applications interests	Human activity and emotion recognition, neuroscience, analysis and classification of art and archeology pieces.
Computer architecture	GPU and multi-core optimization and SIMD vectorization.

Publications

[1] A. Romero Mier y Terán, L. Lacassagne, A. Hassan Zahraee, and M. Gouiffès. Real-time covariance tracking algorithm for embedded systems. In *Conference on Design Architectures for Signal Image Processing (DASIP) proceedings.*, number Special Issue on Real-Time Color Image Processing. IEEE, 2013.

[2] F. Laguzet, A. Romero Mier y Terán, M. Gouiffès, and L. Lacassagne. Color tracking with contextual switching: Real-time implementation on CPU. *Journal of Real Time Image Processing (JRTIP)*, (Special Issue on Real-Time Color Image Processing), 2013.

[3] A. Romero, M. Gouiffès, and L. Lacassagne. Total Bregman Divergence for Multiple Object Tracking. In *IEEE, International Conference on Image Processing (ICIP)*. IEEE, sep. 2013.

[4] A. Romero, M. Gouiffès, and L. Lacassagne. Enhanced Local Binary Covariance Matrices ELBCM for texture analysis and object tracking. In *MIRAGE 2013, Berlin, Germany. ACM International Conference Proceedings Series*. Association for Computing Machinery, 2013.

[5] A. Romero, M. Gouiffès, and L. Lacassagne. Covariance descriptor multiple object tracking and re-identification with colorspace evaluation. In *ACCV 2012 Workshops, Part II, LNCS 7729 proceedings*. Springerlink, 2012.

[6] A. Romero, M. Gouiffès, and L. Lacassagne. Feature points tracking adaptive to saturation. In *Signal and Image Processing Applications (ICSIPA), 2011 IEEE International Conference on*, pages 277 –282, nov. 2011.

[7] Bohumil Psenicka, Francisco Garcia Ugalde, and Andrés Romero. Design of the wave digital filters, 2009.

[8] A. Romero and M. Nakano-Miyatake. H, perez-meana, a hybrid noise canceling structure with secondary path estimation. *WSEAS Recent Advances in Systems, Communications and Computers*, pages 194–199, 2008.

[9] B. Psenicka, Francisco J. García-Ugalde, and A. Romero Mier y Terán. Synthesis of the low-pass and high-pass wave digital filters. In *ICINCO-SPSMC*, pages 225–231, 2008.

[10] B. Psenicka, F.G. Ugalde, L.E. Salguero, and A. Romero. Synthesis of digital structure by matrix method. In *Proceedings of the 7th IASTED International Conference on Signal and Image Processing*, pages 190–194, 2005.

Hobbies and interests

History   Passionate for ancient mexican (pre-hispanic) and european history.

Sports   Basketball and volleyball

Music   Barroque, mexican and word's folkloric music.