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.

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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.