

CURRICULUM VITAE

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Studies and academic qualifications

Engineer / Polytechnic School (Ecole Polytechnique Paris - 1977)

Engineer / Telecommunication School (ENST Paris - 1979)

Doctor (PhD): “Doctor-Engineer” Thesis defended at the ENST (1982) on “*Study and Development of an Algorithm for Hidden Surface Elimination*”

Accreditation to research supervision: “State Doctorate” Thesis defended at the University of Besançon (1987) on “*Interactive Modeling of Complex Shape Objects from Heterogeneous Data – Application to the Representation of Anatomical Structures*”

Current Position

Full Professor at the Computer Science Department of the University of Aix-Marseille (since 1991)

(Status: “Exceptional Class Professor” – top 1% – since 2010)

Head of the SimGraph research group at the LSIS laboratory (UMR CNRS 7296 – Marseille)

Invited Professor at the IRSA (Chinese Academy of Sciences) and at the ISIG (Burkina Faso)

Executive Committee Member of the ISDE (International Society for Digital Earth)

IEEE Senior Member

Previous Positions

Professor at the ENSTP – Yamoussoukro – Ivory Coast (1979 – 1981)

Researcher at the IBM Paris Scientific Center (1981 – 1991) – Paris (France)

including 6 months (1983) in a U.S. laboratory developing a new graphics workstation (IBM 5080)

Vice-Director of the LSIS laboratory (2002 – 2008)

Coordinator of several Master Curriculae (1998 – 2010) including one in Shanghai (2005 – 2010)

Miscellaneous

122 publications including 36 in journals and books, 57 in international conferences (with reviews and proceedings), 27 in national conferences (with proceedings) and 2 patents

Supervision of 23 PhD theses (21 passed and 2 in process) and 30 Master research works

Referee for 90 PhD theses, including 46 as main reviewer

Some relevant activities in various fields during the last years

Research activity and projects:

My research activity deals with image analysis, geometrical modeling and image synthesis. I recently created a research group (SimGraph Group, in 2008) whose goal is to perform data fusion from images, to extract information from these data, to integrate it into a model and to display it in a way that communicates the relevant information to a specific end user.

This activity is not dedicated to a given application field but to several ones such as Remote Sensing, Medical Imaging, Video Watching, Simulation, knowing that my research group and myself are not specialized in each of these fields. For this reason, I have set partnerships with various institutes, institutions or companies that are specialized in these fields, my contribution being in the area of algorithmics for image understanding and image production.

My field of expertise is related to algorithmics, to pattern recognition, to image segmentation and registration, to geometrical modeling and to scientific visualization. I have projects on “Image Enhancement” for video watching and Forensics with the National Scientific Police Institute in France, I work on “Image Registration” for Remote Sensing with the IRSA (Institute of Remote Sensing Applications – Chinese Academy of Sciences) and other institutes, I develop research on “3D Reconstruction from clouds of points” in the frame of partnerships with companies that use Underwater Sonar to detect and characterize specific objects in the sea (Coast Watching), I designed a method (and obtained a patent for it) to perform real-time wire detection using a LIDAR (for helicopters), and I defined several reconstruction approaches for 3D anatomical structure representation, especially in the frame of collaboration with medical institutions.

International activity:

During the last ten years, I have developed bilateral collaborations with many countries (Portugal, United States, Tunisia,) but the main ones are with:

- China: I mainly work with the IRSA (mentioned above) on Remote Sensing projects (co-supervised PhD, research projects), but have also set relations with other institutions (Zhejiang University in Hangzhou, or Hohai University in Nanjing) and companies (Shanghai Modern Logistics Investment for the logistic of a Master degree I created and managed in Shanghai).
- Canada: we have been developing a fruitful collaboration with the University of Montreal for more than ten years on medical imaging projects (PhD co-supervision,)
- Burkina Faso: I am involved in an Institute dedicated to Computer Science whose name is ISIG, my involvement being in Research, in Teaching and through the participation at the institution (Scientific Committee Member).
- India: I have set collaboration with the Karunya Institute of Technology (Coimbatore) that led to the supervision of a PhD research work on multispectral images.

In 2006, I participated in the creation of an international organization, ISDE (International Society for Digital Earth) of which I am an Executive Committee member; and I also participated in the creation of an international journal, IJDE (International Journal of Digital Earth – Taylor & Francis Edition).

I am also involved in the organization of international workshops (such as TAIMA, every two years in Tunisia) and conferences or summits (every year with the ISDE), or as a reviewer for several international journals and conferences.

Industrial activity:

Besides fundamental research activities, I have developed industrial partnerships that have given me the opportunity to increase the value of this activity through technology transfers (patents, licensing.).

The companies I recently worked with are:

- Eurocopter (real-time wire detection using a LIDAR)
- Optis (physically realistic image production – Virtu'Art project with Eurocopter, EADS)
- Kaolab and Nexvision (video watching using an intelligent 360° video camera)
- Subsea Tech and Kaolab (underwater watching using a Sonar)
- SII (Simulfoot: a simulator for analyzing soccer configurations from video sequences)

Teaching activity:

I teach all courses that deal with images (image processing, pattern recognition, geometrical modeling, scientific visualization, simulation) and algorithmics at all levels (Bachelor and Master degrees) and to any audience (in various countries, to professional or to students).

A selection of relevant publications:

The list below is a selection of recent publications. These publications are not the best ones but they illustrate my research activity quite well.

E. Selvan, A. Mustatea, C. Xavier, and J. Sequeira. "Accurate Estimation of ICA Weight Matrix by Implicit Constraint Imposition Using Lie Group". *IEEE Transactions on Neural Networks*, 20(10):1565-1580, October 2009. Impact Factor = 3,726

M. Jourdain, J. Meunier, J. Sequeira, J-M. Boï, and J-C. Tardif. "A robust 3D IVUS Transducer Tracking using Single-Plane Cineangiography". *IEEE Transactions on Information Technology in Biomedicine: Special Issue on Computer Vision for Intravascular and Intracardiac Imaging*, May 2008. Impact Factor = 1,939

Ch. Palmann, S. Mavromatis, M. Hernandez, J. Sequeira, and B. Brisco. Earth observation using radar data: an overview of applications and challenges. *International Journal of Digital Earth* (Taylor and Francis), vol 2, 2008. Impact Factor = 1,453

Ch. Palmann, S. Mavromatis, and J. Sequeira. "Pairing regions in remote sensing images of different modalities", *International Journal of Remote Sensing*, 2012

F. Graglia, J-L Mari, G. Baïkoff, J. Sequeira, "Contour Detection of the Cornea from OCT Radial Images", *Electronic Journal SCIO*, April 2010

F. Graglia, S. Mavromatis, and J. Sequeira. "Physically-based Rendering for Real-Time Walkthrough". *VisiGrapp 2012 Conference*, Roma, Italy, Février 2012.

Ch. Palmann, S. Mavromatis, and J. Sequeira. "A new geometric invariant to match regions within remote sensing images of different modalities". *SPIE Europe Remote Sensing*, Prague, Czech Republic, September 2011.

Y. Caulier, A. Nicolini, J. Sequeira. "Free-form Specular Surface Inspection With Adapted Coded-Light", *IASTED International Conference on Signal Processing, Pattern Recognition, and Applications*; Innsbruck, Austria, February 2011.

H. Huynh, J. Meunier, J. Sequeira, M. Daniel, "Enhancing the Recognition of Medication Intake using a Stereo Camera" , the Third International Conference on Communications and Electronics (ICCE 2010), Nha-Trang, Vietnam, August 2010.

M. Jourdain, J. Meunier, J. Sequeira, J-CI Tardif, G. Cloutier, "Intravascular Ultrasound Image Segmentation: A Helical Active Contour Method", *IPTA 2010* (international conference on image processing theory, tools and applications), Paris, France, July 2010.

- H. Huynh, J. Meunier, J. Sequeira, and M. Daniel. "Real Time detection, tracking and recognition of medication intake". *International Conference on MaChina Vision, Image Processing, and Pattern Analysis*; Bangkok, Thailand, December 2009.
- Ch. Palmann, S. Mavromatis, and J. Sequeira. "A new approach for registering Remote Sensing images from various modalities". *SPIE Europe Remote Sensing*, Berlin, Germany, September 2009.
- G. Thibault, B. Fertil, C. Navarro, S. Pereira, P. Cau, N. Lévy, J. Sequeira, and J-L. Mari. "Texture indexes and gray level size zone matrix. Application to cell nuclei classification". *10th International Conference on Pattern Recognition and Information Processing, PRIP 2009*, Minsk, Biélorussia, pages 140-145, May 2009.
- Y. Loya, L. Some, B. Some, M. Daniel, and J. Sequeira. "Remote Sensing and Modeling Contribution to Ecosystem Control in Burkina Faso". *Digital Earth Summit on Geoinformatics 2008: Tools for Global Change Research*, Potsdam, Germany, November 2008.
- Ch Palmann, S. Mavromatis, and J. Sequeira. "SAR image registration using a new approach based on the Generalized Hough Transform". *ISPRS 2008 - Beijing*, China, July 2008.
- L. Lucia, S. Mavromatis, S. Perrotte, P. Dias, and J. Sequeira. "Camera location and aperture characterization using the transformation between a 2D plane and the image captured by the camera". *In Springer Verlag, editor, ICIAR 2008 - Povoia de Varzim*, Portugal, June 2008.
- F. Graglia, J-L. Mari, G. Baikoff, and J. Sequeira. "Contour Detection of the Cornea from OCT Radial Images". *29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2007*, pages 5612-5615, Lyon, France, August 2007.
- M. Jourdain, J. Sequeira, J. Meunier, J-C. Tardif, and J-M Boï. "Automatic positioning of features in low-contrast fluoroscopic images". *Graphicon 2007 - Moscow*, Russia, June 2007.
- G. Menegaz, A. Le Troter, J.M. Boï, and J. Sequeira. "Semantic driven resampling of the USA-UCS". *CCIW 07 - Modena*, Italy, September 2007.
- R. Pire, F-X. Filias, J. Sequeira, D. Bouheret, and M. Gillet. "Digital Range Image Algorithms for Flight Guidance Aids for Helicopter Low-Level-Flights". *AHS (American Helicopter Society) 63rd Annual Forum and Technology Display*, May 2007.
- F-X. Filias and J. Sequeira. "Method for telemetric detection of suspended wire-like objects", Patent January 2007.
Note: PCT : WO 2007/010113 A1. (Patent)