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Updated on
November 1, 2010

Research interests

Spatial reasoning, image segmentation, graph representations, model and knowledge-based recognition of image structures, structures recognition, fuzzy sets, learning, visual system, pre-attentive mechanisms, medical images, anatomical models.

Positions and Education

- Jan-Dec/2010** POSTDOCTORAL SCHOLAR AT TÉLÉCOM PARISTECH, PARIS, FRANCE.
Semi-automatic approaches for whole-body MRI segmentation for building 3D models of the anatomy of children. Project "kidpocket", financed by French national research agency (ANR).
In collaboration with Orange labs and St. Vincent de Paul Hospital.
- Jan/2007-Feb/2010** PHD IN IMAGE PROCESSING FROM TÉLÉCOM PARISTECH, PARIS, FRANCE
Sequential segmentation optimization using structural models and focus of visual attention. Application to the recognition of internal brain structures in 3D magnetic resonance images (MRI).
Phd defense: February 22, 2010
Comittee:
- Philippe Taroux (Universite Paris 11, Paris, France).
- Serge Guillaume (CEMAGREF, Montpellier, France).
- Jamal Atif (Universite Paris 11, Paris, France).
- Michel Desvignes (GIPSA-Lab, Grenoble, France).
- Advisor: Isabelle Bloch (isabelle.bloch@telecom-paristech.fr).
- Oct/2005 - Sep/2006** M. SC ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING
at university Pierre et Marie Curie (Paris VI, known as Master IAD).
Internship : local reasoning with fuzzy attributes graphs. Led to a publication.
Advisor : Isabelle Bloch.
- Jun/2001 - Jan/2007** RESEARCH ENGINEER POSITION IN IMAGE PROCESSING
Laboratoire de recherche et développement de l'Epita. Contact: Thierry Géraud (theo@lrde.epita.fr)
- Document image analysis.
- 3D visualization
- Biometry
In partnership with companies. Led to a publication.
- Sep/1998-Jun/2001** ENGINEER DEGREE, COMPUTER SCIENCES STUDIES
at Ecole Pour l'Informatique et les Techniques Avancées, Paris, France.
Training by research. Led to a publication.

Publications

Book chapter:

1) HELIN DUTAĞAÇI, GEOFFROY FOUQUIER, ERDEM YÖRÜK, BÜLENT SANKUR, LAURENCE LIKFORMAN AND JÉRÔME DARBON *Hand Recognition*

Book chapter. 2008 " Guide to Biometric Reference Systems and Performance Evaluation " Springer-Verlag London Limited.

Journal papers:

1) **Journal Paper in submission** GEOFFROY FOUQUIER, JAMAL ATIF, ISABELLE BLOCH *Model-based segmentation and recognition driven by visual features.* AVAILABLE AS A TECHNICAL REPORT: [HTTP://SERVICE.TSI.TELECOM-PARISTECH.FR/CGI-BIN/VALIPUB_DOWNLOAD.CGI?DID=217](http://SERVICE.TSI.TELECOM-PARISTECH.FR/CGI-BIN/VALIPUB_DOWNLOAD.CGI?DID=217)

International conferences (refereed):

9) **Conference Paper in submission** GEOFFROY FOUQUIER, JÉRÉMIE ANQUEZ, ISABELLE BLOCH, CÉLINE FALIP, CATHERINE ADAMSBAUM, *Subcutaneous fat segmentation in whole-body MRI of children.* 2010

8) GEOFFROY FOUQUIER, JAMAL ATIF AND ISABELLE BLOCH, *Sequential spatial reasoning in images based on pre-attention mechanisms and fuzzy attribute graphs*
In the proceedings of the 18th European Conference on Artificial Intelligence (**ECAI'08**), pp 611-615, Patras, Greece, Jul 21-25, 2008.

7) GEOFFROY FOUQUIER, JAMAL ATIF AND ISABELLE BLOCH, *Incorporating a pre-attention mechanism in fuzzy attribute graphs for sequential image segmentation*
In the proceedings of the 12th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (**IPMU'08**), pp 840-847, Torremolinos (Malaga), Spain, Jun 22-27, 2008.

6) EMANUEL ALDEA, GEOFFROY FOUQUIER, JAMAL ATIF AND ISABELLE BLOCH, *Kernel Fusion for Image Classification Using Fuzzy Structural Information*
In the proceedings of the 3rd International Symposium on Visual Computing (**ISVC'07**), LNCS 4842, pages 307-317, ISBN: 978-3-540-76855-5, Lake Tahoe, Nevada/California, USA, Nov. 26-28, 2007.

5) GEOFFROY FOUQUIER, JAMAL ATIF AND ISABELLE BLOCH, *Local reasoning in fuzzy attribute graphs for optimizing sequential segmentation*
In the proceedings of the 6th IAPR TC-15 Workshop on Graph-based Representations in Pattern Recognition (**GBR'07**), LNCS 4538, pages 138-147, ISBN: 978-3-540-72902-0. Alicante, Spain, June 2007

4) GEOFFROY FOUQUIER, LAURENCE LIKFORMAN, JÉRÔME DARBON AND BÜLENT SANKUR, *The Biosecure Geometry-based System for Hand Modality*
In the proceedings of the 32nd International Conference on Acoustics, Speech, and Signal Processing (**ICASSP'07**), vol I, pages 801–804, ISBN: 1-4244-0728-1. Honolulu, Hawaii, USA, April 2007

3) JAMAL ATIF, CÉLINE HUDELLOT, GEOFFROY FOUQUIER, ISABELLE BLOCH AND ELSA ANGELINI *From Generic Knowledge to Specific Reasoning for Medical Image Interpretation using Graph based Representations*
In the proceedings of the Twentieth International Joint Conference on Artificial Intelligence (**IJCAI'07**), pages 224–229. Hyderabad, India, Jan 2007

2) THIERRY GÉRAUD, GEOFFROY FOUQUIER, QUOC PEYROT, NICOLAS LUCAS AND FRANCK SIGNORILE. *Document Type Recognition Using Evidence Theory.*
In the proceedings of the Fifth IAPR International Workshop on Graphics Recognition (**GREC'03**), pages 212-221, J. Lladós Ed., Computer Vision Center, UAB, Barcelona, Spain July 2003

1) ALEXIS ANGELIDIS AND GEOFFROY FOUQUIER, *Visualization Issues in Virtual Environments: From Computer Graphics Techniques to Intentional Visualization.*
In the proceedings of the 9th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (**WSCG'01**) (V. Skala, Ed.; ISBN 80-7082-713-0) vol. 3, pages 90-98, Plzen, Czech Republic, February 2001.

National conferences (refereed):

1) EMANUEL ALDEA, GEOFFROY FOUQUIER, JAMAL ATIF AND ISABELLE BLOCH, *Classification d'images par fusion d'attributs flous de graphes, relations spatiales et noyaux marginalisés*

Dans les actes des rencontres Francophones sur la Logique Floue et ses Applications (LFA'07), pages 25-32, Nimes, France, 22-23 Novembre 2007

Teaching Experience

- 2007/2008** COMPUTER SCIENCE LECTURES
at Institut de Formation d'Ingénieurs de la faculté Paris Sud (IFIPS), Paris. 10 hours on Object-oriented programming for 2nd year engineering students.
- 2006-2010** TEACHING ASSISTANT
at Telecom ParisTech, Paris.
- 54 hours of C programming for 2nd year engineering students.
 - 12 hours of java for 2nd year engineering students.
 - 18 hours of C++ programming for 2nd year engineering and master students.
 - 9 hours of introduction to UNIX for 2nd year engineering students.
 - 30 hours of object oriented programming for 2nd year engineering students.
 - 30 hours of C programming under UNIX for 2nd year engineering and master students.
- 2002-2004** COMPUTER SCIENCE LECTURES
M. Sc DESS DEFI, University Paris X, Paris. 40 hours on Network and linux for 1st year Master students.
- 2001-2002** TEACHING ASSISTANT
at EPITECH, Paris.
- 60 hours of C++ Programming for under-graduate students.
 - 60 hours of syntax analysis and grammar for under-graduate students.

Students Supervision

- Oct-Dec/2007** M. SC PROJECT CO-ADVISOR
Subject: *Levelling Morphological filter* . Co-advised with Isabelle Bloch at Telecom ParisTech. Students: Ester Botica and Luis Toribio.
- Apr-Jul/2005** INTERNSHIP ADVISOR
Subject: *development of a new hand biometric database* at Telecom ParisTech. Student: Abdel Bouakline

Visiting Positions

- Dec/2008** INVITED VISITOR
at Institut of mathematics and statistics of university of São-Paulo, Brazil. My host was Roberto M. Cesar-Jr
- Sep-Oct/2008** INVITED VISITOR
at Institut de Recherche pour le Développement, Cayenne, French Guyana, France. My host was Jamal Atif.
- Mar-May/2008** INVITED VISITOR
at Institut of mathematics and statistics of university of São-Paulo, Brazil. My host was Roberto M. Cesar-Jr

Event Organizations

2005 CO-ORGANIZER OF THE BIOSECURE RESIDENTIAL WORKSHOP.
at Telecom ParisTech, Paris. Duration: 1 month (august 2005), 90 participants from 22 BioSecure partners.

Projects and collaborations

Jan-Dec 2010 KIDPOCKET
Semi-automatic approaches for whole-body MRI segmentation for building 3D models of the anatomy of children.
- Collaboration with Orange lab for dosimetry studies in case of phone exposition.
- Collaboration with radiologists at St. Vincent de Paul Hospital for image gathering, segmentation validations and adaptations of the acquisition protocols in order to facilitate image processing.

Mar-Mai,Dec 2008 COLLABORATION WITH THE UNIVERSITY OF SÃO-PAULO.
Extension of a semi-interactive segmentation method with high-levels attributes. Collaboration between Telecom ParisTech and the university of São-Paulo. Project founded by French (CAPES) and Brazilian (COFECUB) cooperation agencies.
Contact: Roberto Cesar (cesar@vision.ime.usp.br)

2004-2006 BIOSECURE
Biometrics for Secure Authentication. European network of excellence.
- method and software for geometry-based hand recognition. Soft ware freely available. Led to publications.
- co-organizer of the first residential biosecure workshop. See event organizations.

2001-2003 BIOMET I AND II
Multimodal verification of identity. Contact Marc Sigelle (marc.sigelle@telecom-paristech.fr)
- software development for the acquisition of a multimodal biometric database.
- definition of acquisition protocols.

2001-2003 SWT
Document type recognition for a given database without supervision. In partnership with a compagny. Led to a publication.

Sep-Dec/1999 ACOHIR
European project on Accurate Colour high Resolution Recording and Reproduction of 3D objects for electronic publishing and the consumer market. Internship in collaboration with A. Angelidis,
- software development
- data acquisition at the Louvre museum.

Invited Seminars

4) *Segmentation and recognition of anatomical structures in 3D imaging for realistic 3D modeling of the human body.*

Seminar IT/EMA/IM1/IM2 at Telecom Bretagne, Brest, France. Jul., 2010.

3) *Interactive segmentation model with high-level attributes.*

Seminar at Institut of mathematics and statistics of university of São-Paulo, Brazil. Apr., 2009.

2) *Spatial Reasoning with fuzzy attribute graphs for image segmentation and interpretation*

Seminar at Institut de Recherche pour le Développement, Cayenne, French Guyana, France, Oct., 2008.

1) *Spatial Reasoning with fuzzy attribute graphs for image segmentation and interpretation.*

Seminar at Institut of mathematics and statistics of university of São-Paulo, Brazil. Apr., 2008.

Oral Presentations

- 4) *Sequential spatial reasoning in images based on pre-attention mechanisms and fuzzy attribute graphs.*
European Conference on Artificial Intelligence (**ECAI'08**), Patras, Grece, Jul. 2008.
- 3) *Incorporating a pre-attention mechanism in fuzzy attribute graphs for sequential image segmentation.*
International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (**IPMU'08**), Torremolinos (Malaga), Spain, Jun. 2008.
- 2) *Kernel Fusion for Image Classification Using Fuzzy Structural Information.*
International Symposium on Visual Computing (**ISVC'07**), Lake Tahoe, USA, Nov. 2007.
- 1) *Image classification using fusion of fuzzy graph attributes, spatial relations and marginalized kernels.*
Rencontres francophones sur la Logique Floue et ses Applications (**LFA'07**), Nimes, France, Nov. 2007.

Computer science skills

DEVELOPEMENT SKILLS

Proficient in C, C++, distributed programing with Sun Grid Engine, linux system administration and shell scripting.

MAINTAINER AND CONTRIBUTOR

TIVOLI : Traitement des images volumiques. A library dedicated to 3D images processing. Available for research purpose on demand. <https://trac.telecom-paristech.fr/trac/project/tivoli/wiki>

MAIN DEVELOPER AND MAINTAINER

BioSecure geometry-based reference system for hand recognition. Available at <https://trac.lrde.org/hands>

Other Skills

SPORTS

Squash, badminton

Golf, regional level: 1995, 1996