

Aina Frau-Pascual

INRIA Grenoble Rhône-Alpes
655 Avenue de l'Europe,
38330 Montbonnot-Saint-Martin
+33 699868098,
aina.frau-pascual@inria.fr

Education

2013-PRESENT PhD

INRIA MISTIS, GRENoble UNIVERSITY, LJK GRENoble, INRIA PARIETAL

PhD thesis: *“Statistical Models for the coupling of ASL and BOLD Magnetic Resonance modalities to study brain function and disease”*

Advisors: Florence Forbes (Mistis team, INRIA), Philippe Ciuciu (CEA Saclay, Parietal team, INRIA),

2012-2013 Master M2 MVA Mathématiques / Vision / Apprentissage (Mathematics, computer vision and learning)

ÉCOLE NORMALE SUPÉRIEURE DE CACHAN

Master thesis: *“Hemodynamically informed parcellation of cerebral fMRI data”*, April-September 2013.

Advisors: Thomas Vincent (Mistis team, INRIA), Philippe Ciuciu (CEA Saclay and Parietal Team, INRIA), Florence Forbes (Mistis team, INRIA)

2009-2012 Engineering Degree in Telecommunications

ESCOLA TÈCNICA SUPERIOR D'ENGINYERIA DE TELECOMUNICACIÓ DE BARCELONA (ETSETB),
UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC) BARCELONATECH

Master thesis: *“Expert system for automated selection of local trajectories in diffusion MRI images”*, 2011/2012.

Advisors: Ferran Marqués (Image Processing Group, UPC), Ivan Amat (Transmural Biotech, Expert Ymaging)

2003-2008 Technical Engineering Degree in Telecommunications, specialising in Telematics.

UNIVERSITAT DE LES ILLES BALEARS (UIB)

Final Project: *“Markov models in systems based on Adaptive Modulation and Coding (AMC) schemes and ARQ error control strategies”*, 2008. Advisor: Guillem Femenias (Mobile Communications Group, UIB)

Employment history

September 2013 - 2016: PhD candidate. INRIA

April 2013 - September 2013: Internship on *“Hemodynamically informed parcellation of cerebral fMRI data”*. INRIA

January 2011 - June 2012: Research assistant for the development of systems for automated selection of local trajectories in diffusion MRI images, and for connectome computation. TRANSMURAL BIOTECH S.L. AND EXPERT YMAGING

October 2010 - February 2011: Development of material and support in practical lessons in the course *“Coding and Transmission of Multimedia Content”*. UPC learning scholarship for the support of Educational Activity.

IMAGE PROCESSING GROUP, UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC) BARCELONATECH

February 2008 - September 2008: Internship at Systems, Networks and Communications Department. Tasks: Computer support to the end user, configuration of servers and PCs running Windows and Linux, configuration of applications, configuration and installation of network elements, backup management, Joomla web development.

IBIT FOUNDATION (BALEARIC ISLANDS TECHNOLOGICAL INNOVATION).

October 2007 - July 2008: *“Markov models in systems based on Adaptive Modulation and Coding (AMC) schemes and ARQ error control strategies”*. Scholarship for support in research at Mobile Communication Group.

MOBILE COMMUNICATION GROUP, UNIVERSITAT ILLES BALEARS (UIB)

June 2007 - September 2007: Internship at New Technologies Department. Tasks: computer support to end user, development and maintenance of the website. COFIB (OFFICIAL COLLEGE OF PHARMACISTS OF THE BALEARIC ISLANDS)

Research interests

Biomedical Image Processing and Analysis, Bayesian Models, Machine Learning, neuroimaging, functional and diffusion MRI.

Publications

- Aina Frau-Pascual, Florence Forbes, and Philippe Ciuciu. “*Variational physiologically informed solution to hemodynamic and perfusion response estimation from ASL fMRI data.*” In Pattern Recognition in NeuroImaging (PRNI), 2015 International Workshop on, pp. 57-60. IEEE, 2015.
- Aina Frau-Pascual, Florence Forbes, and Philippe Ciuciu. “*Comparison of stochastic and variational solutions to ASL fMRI data analysis.*” In Medical Image Computing and Computer-Assisted Intervention MICCAI 2015, pp. 85-92. Springer International Publishing, 2015.
- Aina Frau-Pascual, Florence Forbes, and Philippe Ciuciu. “*Physiological models comparison for the analysis of ASL fMRI data.*” In Biomedical Imaging (ISBI), 2015 IEEE 12th International Symposium on, pp. 1348-1351. IEEE, 2015.
- Aina Frau-Pascual, Thomas Vincent, Jennifer Sloboda, Philippe Ciuciu, and Florence Forbes. “*Physiologically informed Bayesian analysis of ASL fMRI data.*” In Bayesian and graphical Models for Biomedical Imaging, pp. 37-48. Springer International Publishing, 2014.
- Aina Frau-Pascual, Thomas Vincent, Florence Forbes, and Philippe Ciuciu. “*Hemodynamically informed parcellation of cerebral FMRI data.*” In Acoustics, Speech and Signal Processing (ICASSP), 2014 IEEE International Conference on, pp. 2079-2083. IEEE, 2014

Talks and poster presentations

- “*Variational physiologically informed solution to hemodynamic and perfusion response estimation from ASL fMRI data.*” Oral presentation at the International Workshop on Pattern Recognition in NeuroImaging (PRNI), Stanford University, Palo Alto (USA), June 10-12 2015.
- “*Comparison of stochastic and variational solutions to ASL fMRI data analysis.*” Poster session at the 18th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Munich (Germany), October 5-9 2015.
- “*Physiological models comparison for the analysis of ASL fMRI data.*” Poster session at the IEEE 12th International Symposium on Biomedical Imaging (ISBI), New York (USA), April 16-19 2015.
- “*Physiologically informed Bayesian analysis of ASL fMRI data.*” Oral presentation at the MICCAI workshop Bayesian and graphical Models for Biomedical Imaging, Boston (USA), September 18 2014.
- “*Statistical Models for the coupling of ASL and BOLD Magnetic Resonance modalities to study brain function and disease.*” Poster session at the DSV (Direction des sciences du vivant CEA) PhD meeting, Porquerolles (France), October 19-21 2014.
- “*Statistical Models for the coupling of ASL and BOLD Magnetic Resonance modalities to study brain function and disease.*” Poster session at the Medical Imaging Summer School 2014, Favignana (Italy), July 31-August 06 2014.
- “*Statistical Models for the coupling of ASL and BOLD Magnetic Resonance modalities to study brain function and disease.*” Poster session at the 2014 I2BM (Institut d’Imagerie Biomédicale CEA) PhD day, Hospitalier Frédéric Joliot, Orsay (France), June 24 2014.
- “*Hemodynamically informed parcellation of cerebral FMRI data.*” Poster session at the 2014 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Florence (Italy), May 4-9 2014.

Workshops and Summer Schools

2015	<i>Advanced Scientific Programming in Python: a Summer School by the G-Node, the Bernstein Center for Computational Neuroscience Munich and the Graduate School of Systemic Neurosciences.</i> 31 AUGUST - 05 SEPTEMBER, MUNICH, GERMANY
2014	<i>Medical Imaging Summer School (MISS)</i> 31 JULY - 06 AUGUST, FAVIGNANA, ITALY
2010	<i>Training Workshop on Development Cooperation</i> 28-30 JUNE, UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC) BARCELONATECH

Computing Skills

Main programming languages: Python (python ecosystem, notably numpy, scipy, matplotlib, nilearn, nistats, scikit-learn, nypipe, nibabel), Matlab.

Version control: GIT (<https://github.com/ainafp>), SVN

Software development: PyHRF, a python package to study hemodynamics in fMRI <http://pyhrf.org/>

Image processing tools: SPM, FSL, TrackVis (Diffusion Toolkit), MedINRIA.

Word Processor: L^AT_EX, Office.

Operating Systems: Linux, Windows.

Languages

Spanish: Native speaker

Catalan: Native speaker

English: C1 level (advanced)

French: B2 level (upper-intermediate)

Other activities

Interests: Swimming (competitive on national level from 1999 to 2004), climbing.

2010-2012 Member of AUCCOP, UPC university association with the objective of cooperating in technological issues in developing countries.