

EMPLOYMENT

- ▶ Postdoctorate in Electrical Engineering, USC, Los Angeles California, USA, 2016-
Principal Investigators: Pr. Antonio Ortega and Pr. Shrikanth S. Narayanan
Subject: Graph Signal Processing and Human Behavior Modeling
Software production: Continued work on GraSP, Modeling pipeline for the Tiles project (not yet published)
- ▶ PhD in Computer Science, ENS de Lyon, Lyon, FRANCE, 2012-2015
Supervisors: Éric Fleury and Paulo Gonçalves
Subject: Signal Processing on Graphs – Contributions to an Emerging Field
Graduation: 1st December 2015
Software production: GraSP (**Graph Signal Processing**) toolbox for Matlab (<https://gforge.inria.fr/projects/grasp/>)
- ▶ Teaching Assistant in Computer Science, ENS de Lyon, Lyon, FRANCE, 2012-2015
2014-2015 – ACM Preparation (practical course of solving algorithmic problems using ACM-ICPC problems), L3 (Professor: Éric Thierry) [21 hours]
2013-2015 – Software project management, M1 (Professor: Eddy Caron) [72 hours]
2012-2014 – Optimization, M1 (Professor: Stéphan Thomassé) [48 hours]
2012-2013 – Project 2 (Implementation of a SAT Solver), L3 (Professor: Daniel Hirschhoff) [32 hours]

PUBLICATIONS

International Journal

- ▶ Benjamin Girault, Antonio Ortega, and Shrikanth S. Narayanan. Irregularity-Aware Graph Fourier Transforms. *IEEE Transactions on Signal Processing*, 66(21):5746–5761, Nov 2018
- ▶ Benjamin Girault, Paulo Gonçalves, and Éric Fleury. Translation on Graphs: An Isometric Shift Operator. *Signal Processing Letters, IEEE*, 22(12):2416–2420, Dec 2015

Peer-Reviewed International Conference Papers with Proceedings

- ▶ Alexander Serrano, Benjamin Girault, and Antonio Ortega. Graph Variogram: a Novel Tool to Measure Spatial Stationarity. In *2018 IEEE Global Conference on Signal and Information Processing (GlobalSIP 2018)*. IEEE, December 2018
- ▶ Benjamin Girault, Shrikanth S. Narayanan, and Antonio Ortega. Towards a definition of local stationarity for graph signals. In *2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 4139–4143. IEEE, March 2017
- ▶ Benjamin Girault, Shrikanth S. Narayanan, Antonio Ortega, Paulo Gonçalves, and Eric Fleury. Grasp: A matlab toolbox for graph signal processing. In *2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 6574–6575. IEEE, March 2017
- ▶ Benjamin Girault, Paulo Gonçalves, Shrikanth S. Narayanan, and Antonio Ortega. Localization Bounds for the Graph Translation. In *2016 IEEE Global Conference on Signal and Information Processing*, Washington D.C., USA, Dec 2016
- ▶ Benjamin Girault. Stationary Graph Signals using an Isometric Graph Translation. In *Signal Processing Conference (EUSIPCO), 2015 Proceedings of the 23rd European*. IEEE, 2015
- ▶ Benjamin Girault, Paulo Gonçalves, Eric Fleury, and Arashpreet Singh Mor. Semi-Supervised Learning for Graph to Signal Mapping: a Graph Signal Wiener Filter Interpretation. In *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing*, Florence, Italy, May 2014
- ▶ Florian Schlachter, Christopher Schwarzer, Benjamin Girault, and Paul Levi. A Modular Software Framework for Heterogeneous Reconfigurable Robots. In Paul Levi, Oliver Zweigle, Kai Häußermann, and Bernd Eckstein, editors, *Autonomous Mobile Systems 2012*, Informatik aktuell, pages 193–201. Springer Berlin Heidelberg, 2012

Peer-Reviewed National Conference Papers with Proceedings

- ▶ Benjamin Girault, Paulo Gonçalves, and Éric Fleury. Signaux Stationnaires sur graphe : étude d'un cas réel. In *Proc. of GretsI 2015*, September 2015
- ▶ Benjamin Girault, Éric Fleury, and Paulo Gonçalves. Traitement du Signal sur Graphe : Interprétation en termes de Filtre de l'Apprentissage Semi-Supervisé sur Graphe. In *Proceedings of AlgoTel 2014*, June 2014
- ▶ Benjamin Girault, Paulo Gonçalves, and Éric Fleury. Graphe de contacts et ondelettes : étude d'une diffusion bactérienne. In *Proceedings of GretsI 2013*, September 2013

Invited Conference Papers

- ▶ Vincent Gripon, Antonio Ortega, and Benjamin Girault. An Inside Look at Deep Neural Networks using Graph Signal Processing. In *2018 Information Theory and Applications Workshop*, San Diego, CA, United States, February 2018
- ▶ Benjamin Girault, Narayanan Shrikanth, S., and Antonio Ortega. Local stationarity of graph signals: insights and experiments. In *Proceedings Volume 10394, Wavelets and Sparsity XVII*, pages 103941P 1–17. SPIE, 2017
- ▶ Benjamin Girault, Eric Fleury, and Paulo Gonçalves. Function analysis through wavelets on dynamic contact graphs. In *ECCS Satellite Contagion workshop*, Barcelona, Spain, September 2013

Book Chapters

- ▶ Serge Kernbach, Benjamin Girault, and Olga Kernbach. On Self-Optimized Self-Assembling of Heterogeneous Multi-robot Organisms. In *Bio-Inspired Self-Organizing Robotic Systems*, pages 123–141. 2011

Posters

- ▶ Benjamin Girault, Paulo Gonçalves, Éric Fleury, and Arashpreet S. Mor. Semi-Supervised Learning for Graph to Signal Mapping: a Graph Signal Wiener Filter Interpretation, 2013. Poster presented at Réunion GDR ISIS, November 25, 2013
- ▶ Benjamin Girault. Graphe de contacts et ondelettes, 2013. Poster presented at GDR ASR Rescom 2013, May 13–17, Île de Porquerolles, France

Research Reports

- ▶ Benjamin Girault, Paulo Gonçalves, and Eric Fleury. Translation and Stationarity for Graph Signals. Research Report RR-8719, École Normale Supérieure de Lyon ; Inria Rhône-Alpes, April 2015

Other Publications

- ▶ Serge Kernbach, Florian Schlachter, Raja Humza, Jens Liedke, Sergej Popesku, S. Russo, T. Ranzani, L. Manfredi, C. Stefanini, R. Matthias, Ch. Schwarzer, Benjamin Girault, P. Alschbach, Eugen Meister, and Oliver Scholz. Heterogeneity for Increasing Performance and Reliability of Self-Reconfigurable Multi-Robot Organisms. *CoRR*, abs/1109.2288, 2011

SOFTWARE PRODUCTIONS

- ▶ *Matlab toolbox: GraSP (Graph Signal Processing)*
2012-2019: <https://gforge.inria.fr/projects/grasp/>

SEMINARS

- ▶ **March 2017:** Centrale-Supélec, Saclay, France
- ▶ **March 2017:** Télécom Bretagne, Brest, France
- ▶ **October 2016:** Ryerson University, Toronto, Ontario, Canada
- ▶ **October 2016:** McGill University, Montréal, Québec, Canada
- ▶ **April 2016:** University of Southern California, Los Angeles, CA, États-Unis

COLLECTIVE SERVICES

Reviews

- ▶ IEEE Transaction on Signal Processing (14, including revised submissions)

- ▶ IEEE Selected Topics in Signal Processing (5)
- ▶ IEEE Signal Processing Letters (3)
- ▶ Elsevier Journal on Signal Processing (1)

Program Committee

- ▶ The Web Conference 2019 (<https://www2019.thewebconf.org/>)
- ▶ IEEE GlobalSIP 2018 (<https://2018.ieeeglobalsip.org/>)
- ▶ IEEE GlobalSIP 2017 (<http://www.2017.ieeeglobalsip.org/>)

Session Chair

- ▶ IEEE GlobalSIP 2016 (<http://www.2016.ieeeglobalsip.org/>)

Special Session Organization

- ▶ SPIE Wavelets & Sparsity XVIII, special session on *Graph Signal Processing* (with Sophie Achard and Pierre Borgnat)

RESEARCH CO-SUPERVISION

PhD Students

- ▶ **Alexander Serrano** (PhD advisor: Antonio Ortega) – 2018- – *ongoing*

Interns

- ▶ **Aymeric Fromherz** (supervisor: P. Gonçalves) – 2014 – Traitement du signal sur des graphes et détection de communautés (Graph signal processing and community detection)
- ▶ **Arashpreet Singh Mor** (supervisor: P. Gonçalves) – 2013 – Graph to Signal Mapping: Study of a Duality Principle

RESEARCH PROJECTS

- ▶ **TILES** – Tracking Individual Performance with Sensors (<http://sail.usc.edu/tiles/>). Modeling pipeline: architecture design, testing, and delivery. Using AWS, EMR (Apache Spark and Hadoop), Docker, and Puppet.
- ▶ **MOSAR** – Study of contact data between people in the MOSAR (<http://www.mosar-sic.org>) dataset. Creation of a PostgreSQL database and cleaning up of raw data.

WORKING GROUPS

- ▶ **Stationarity on Graphs** – In collaboration with the signal processing team Sysiphe (ENS Lyon)

RESEARCH SCHOOLS

- ▶ **2014** – 9^e école d'été de Peyresq en traitement du signal et des images : Traitement du signal et des images en grandes dimensions
- ▶ **2013** – École d'été Rescom: Les réseaux centrés sur les contenus, Évolution ou révolution de l'Internet ?
- ▶ **2010** – Winter School: Hot Topics in Distributed Computing

FIELDS OF INTEREST

Research Graph signal processing, Signal processing analysis, Graph analysis, Distributed computing, Graph theory, Network science, Big data, Clustering algorithms

General Programming, Free Softwares, Electronic, Mechanics, DIY, Guitar, Windsurfing, Hiking, Photography

MISCELLANEOUS

- ▶ *Programming/Computer Science Skills*: C, C++, Matlab, Python, Java, Prolog, PostgreSQL, OCaml, HTML, PHP, JavaScript, Qt, AWS (including EMR), Docker, Puppet
- ▶ *Languages*: French (mother tongue), English (fluent), German (basic understanding), Spanish (basic understanding)

RESEARCH INTERNSHIPS

- ▶ *Master Internship at IRISA (Rennes, France) with Anne-Marie Kermarrec (March-July 2012)*: Clustering in an heterogeneous gossip protocol for news recommendation
- ▶ *Internship at Universität Stuttgart (Germany) with Serge Kernbach (September 2010 - July 2011)*: Towards Self-Assembling of Robotic Modules
- ▶ *Internship at EPFL, Lausanne (Switzerland) with Rachid Guerraoui (March-July 2010)*: Theoretical analysis of a gossip-based protocol, *What's Up*, a news broadcasting peer to peer system
- ▶ *Internship at IRISA (Rennes, France) with Luc Bougé (May-July 2009)*: A distributed random number generator based on BlobSeer and running on Grid5000

EDUCATION

- ▶ Master in Computer Science, MPRI, ENS Cachan, Cachan, FRANCE, September 2012.
 2011-2012 – *2nd year (Semester 1: 13.92 / Semester 2: 13.00 / Year: 13.46)*:
 Software verification (Major) and Graph and Network Theory (Minor)
 2009-2010 – *1st year (Semester 1: 13.28 / Semester 2: 14.50 / Year: 13.89)*
- ▶ Bachelor in Computer Sciences, ENS Cachan, Cachan, FRANCE, 2009
 2008-2009 – *3rd year (Year: 13.93)*
- ▶ Classes Préparatoires aux Grandes Écoles, Lycée Chateaubriand, Rennes, FRANCE
 2007-2008 – *MP**:
 15th at the ENS Cachan – Computer Sciences competitive exam, accepted at ENS Cachan
 2006-2007 – *MP**:
 Accepted at Centrale Nantes
 2005-2006 – *MPSI*