Dr. Paul Magron

Postdoctoral Researcher

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https://magronp.github.io/

Current position

Since 10/2019 **Postdoctoral researcher**, *IRIT, Université de Toulouse, CNRS*, Toulouse, France.
Representation learning for content-aware music recommendation, as part of the ERC project FACTORY.

Professional experience

2017 - 2019 **Postdoctoral researcher**, *Tampere University*, Tampere, Finland.
Audio/music source separation, phase-aware probabilistic models, deep learning.
Real-time speech separation in a collaborative project with the Eriksholm Research Center (Denmark).

2013 - 2016 **Ph.D.**, *Télécom ParisTech, Signal and Image Processing department*, Paris, France.
Audio source separation, phase recovery, time-frequency analysis, probabilistic models (anisotropic Gaussian, alpha-stable), nonnegative matrix factorization.

04/2013 - 08/2013 **Research intern**, *Centro de Investigacion en Tecnologias de Audio*, Santiago, Chile.
Complex resonator acoustics, digital filter design, sound synthesis.

09/2011 - 08/2012 **Trainee engineer**, *Airbus - Propulsion Integration Domain*, Toulouse, France.
Propulsion systems weight management, modeling of water hammer pressure surge observed during engine start.

05/2010 - 07/2010 **Research Assistant**, *UR NAVIER Research Center*, Paris, France.
Straw balls as an ecological construction material - Mechanical analysis of composite panels.

Awards

09/2018 Best Paper Award at IWAENC 2018 for the paper titled “Towards complex nonnegative matrix factorization with the beta-divergence", by P. Magron and T. Virtanen.

Fundings

02/2020 Short-term mobility grant from the Maupertuis program for France-Finland scientific collaboration.

Teaching activities

2018 - 2019 **Teaching assistant**, *Tampere University*, Tampere, Finland.
Advanced audio signal processing (lecture, exercise sessions, project supervision), Introduction to audio signal processing (exercice sessions, project supervision).

2014 - 2016 **Teaching assistant**, *Télécom ParisTech*, Paris, France (128h).
Nonnegative Matrix Factorization (lecture and practical sessions), fundamentals of psychoacoustics (lecture), first-year engineering student projects and final projects (supervision).

Education

2013 - 2016 **Ph.D.**, *Télécom ParisTech, Signal and Image Processing department*, Paris, France.
Thesis: Phase recovery based on signal modeling: application to audio source separation.

July 2016 **Summer school in Image and Signal processing**, *GRETSI*, Peyresq, France.
Probabilistic modeling and Bayesian inference in signal and image processing.

2012 - 2013 **Master of sciences**, *Université Pierre et Marie Curie, Télécom ParisTech and IRCAM*, Paris, France.
Acoustics, Signal Processing and Computer Science applied to Music (ATIAM).
Thesis: Modeling and simulation of the Antara, a Latin American closed-end pan flute.

2009 - 2011 **Engineering degree**, *École des Ponts ParisTech*, Paris, France.
Majors: materials, structures and fluids mechanics.
Minors: acoustics, thermodynamics, aerodynamics.

2007 - 2009 **Preparatory school to French “Grandes Écoles”**, *Lycée Pierre de Fermat*, Toulouse, France.
Majors: mathematics, physics and computer science.

2007 **Baccalaureate in sciences and mathematics**, *Lycée Pierre de Fermat*, Toulouse, France.
Major in mathematics, graduated with first class honors.

Scientific services

Reviewing Journals: IEEE Transactions on Audio, Speech, and Language Processing, IEEE Transactions on Signal Processing, IEEE Signal Processing Letters, IEEE Access, Eurasip journal, Speech communications, Multimedia Systems, MDPI.

Conferences: IEEE International Conference on Audio, Speech, and Signal Processing (ICASSP), Digital Audio Effects (DAFx) conference, International Workshop on Acoustic Signal Enhancement (IWAENC), Interspeech.

Funding agencies: Czech Science Foundation.

Supervision Pierre-Hugo Vial (Ph.D. student at IRIT, Toulouse, France).

Organizer IEEE IJCNN 2021 Special session on Representation Learning for audio processing.

Miscellaneous

Computer science skills Programming: Python, Matlab (advanced), Faust, C++ (to reactivate)
OS: GNU/Linux, Windows
Office: LaTeX, LibreOffice

Languages French (native), English (fluent), Spanish (fluent), Finnish (beginner).

Personal interests Electric guitar: fifteen years of practice, on-stage performances.
Taekwondo: seven years of practice, black belt (1^{st} Dan). Sparring and technical competitions.

Référents

Cédric Févotte (Senior researcher) : Postdoc supervisor - `cedric.fevotte@irit.fr`

Tuomas Virtanen (Professor) : Postdoc supervisor - `tuomas.virtanen@tuni.fi`

Roland Badeau (Professor) : Ph.D. supervisor - `roland.badeau@telecom-paristech.fr`

Selected publications

Full list available at `https://scholar.google.co.uk/citations?user=67-Uh0cAAAAJ&hl=en`

Journals

P. Magron, T. Virtanen, “Online spectrogram inversion for audio source separation", *IEEE Signal Processing Letters*, vol. 27, pp. 306–310, January 2020.

P. Magron, T. Virtanen, “Complex ISNMF: a phase-aware model for monaural audio source separation", *IEEE/ACM Transactions on Audio, Speech and Language* , vol. 27, no. 1, pp. 20–31, January 2019.

P. Magron, R. Badeau, B. David, “Model-based STFT phase recovery for audio source separation", *IEEE/ACM Transactions on Audio, Speech and Language Processing*, vol. 26, no. 6, pp. 1095–1105, June 2018.

Conferences

P. Magron, T. Virtanen, “Towards complex nonnegative matrix factorization with the beta-divergence", *Proc. IWAENC*. September 2018.

P. Magron, T. Virtanen, “Bayesian anisotropic Gaussian model for audio source separation", *Proc. IEEE ICASSP*. April 2018.

P. Magron, K. Drossos, S. I. Mimilakis, T. Virtanen, “Reducing interference with phase recovery in DNN-based monaural singing voice separation", *Proc. Interspeech*. September 2018.

P. Magron, J. Le Roux, T. Virtanen, “Consistent anisotropic Wiener filtering for audio source separation", *Proc. IEEE WASPAA*. October 2017.

P. Magron, R. Badeau, A. Liutkus, “Lévy NMF for robust nonnegative source separation", *Proc. IEEE WASPAA*. October 2017.