Pierre-Amaury GRUMIAUX

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You can find some of my papers, internship reports and useful links (Github, LinkedIn, Google Scholar, etc) on my personal website : pagrumiaux.fr

EDUCATION

2018-2021 **Rennes**	**PhD Student**, Orange Labs & GIPSA-lab *Sound source localization and counting with deep learning*
2017-2018 **Paris**	**Research Master (ATIAM)**, IRCAM & Sorbonne Université *Acoustics, audio signal processing, computer science*
2013-2017 **Lille**	**Graduate Engineering Master**, Ecole Centrale de Lille *Specialized in Computer Science*
Février-Mai 2016 **Copenhagen**	**Erasmus exchange**, Danmarks Tekniske Universitet *Psychoacoustics, audio signal processing, machine learning*
2011-2013 **Saint-Maur**	**Higher School Preparatory Classes**, Lycée Marcelin Berthelot *Mathematics, physics, computer science (MPSI, MP)*

PUBLICATIONS

P.-A. Grumiaux, R. Michon, E. G. Arias, P. Jouvelot, “Impulse-Response and CAD-Model-Based Physical Modeling in Faust”, in *Linux Audio Conference*, Saint-Etienne, France, 2017.

P.-A. Grumiaux, S. Kitic, L. Girin, A. Guérin, “High-Resolution Speaker Counting In Reverberant Rooms using CRNN with Ambisonics Features”, in *European Signal Processing Conference (EUSIPCO2020)*, Amsterdam, Netherlands, 2021

P.-A. Grumiaux, S. Kitic, L. Girin, A. Guérin, “Multichannel CNN for Speaker Counting: an Analysis of Performance”, in *Forum Acusticum (FA2020),* Lyon, France, 2020

EXPERIENCE

Feb-July 2018 **Research internship**, Institut de Recherche et Coordination Acoustique/Musique (IRCAM)

Automatic Drums Transcription with Neural Networks

- Literature review of Automatic Music Transcription (AMT), especially on Automatic Drums Transcription (ADT)
- Implementation of state-of-the-art CRNN model for ADT
- Integration of the student-teacher paradigm to improve the state-of-the-art model, creation of a big unlabeled dataset
- Report (in French) available on Google Scholar

Apr-Aug 2017 **Research Internship**, Audionamix

Audio-to-lyrics alignment for polyphonic music

- Literature review of lyrics-to-audio alignment
- Creation of a training dataset based on TIMIT
- Implementation of a several state-of-the-art model to find the best model together with a proprietary algorithm:
  - Dynamic Time Warping (DTW)
  - Hidden Markov Models (HMM)

Jun-Aug 2016 **Research Internship**, Mines ParisTech & CCRMA (Stanford University)

Physical Modeling based synthesis tools in Faust language

- Implementation of several physical modeling modules in Faust (excitation, strings, terminations)
- Creation of two Python scripts to quickly create Faust physical models
  - Modal model from an impulse response
  - Modal model from a set of geometrical and material properties
- Resulted in a publication in *Linux Audio Conference*

Academic Projects

2014 –2016 **Student project**, Ecole Centrale de Lille

Learning software for rhythmic solfege

- Signal acquisition from a drum pad
- Graphical interface development
  - Display of a rhythmic sequence to play
  - Real-time follow-up of the player rhythm
- System to import and export rhythmic sequences

SKILLS

Computer Science

Languages : C, C++, Python, Matlab, Faust
Web : HTML, CSS, PHP, Javascript, MySQL
Frameworks : Qt, jQuery, Flask
Deep Learning : Tensorflow, Keras
OS : Windows, Linux

Theorical

Acoustics: Audio Signal Processing, Musical Acoustics, Psychoacoustics, Spatial Audio
Mathematics: Machine Learning, Deep Learning

Music

Piano (+20 years), musical theory, sound synthesis (software and hardware synthesizers), production (Ableton Live), mixing, mastering

Others

Latex, Office, project management

Languages

- **French :** Native
- **English :** Full professional skills (TOIEC : 940/990)
- **Spanish :** Basics
- **Portuguese :** Basics

Hobbies

I enjoy all kind of sports, and I have been playing volleyball for 10 years at regional level
I love playing music on the piano or producing different music genres (hip-hop, electronic, dub, soundtracks), and messing around with my synthesizers
I also like reading a lot, especially essays on music, science, history, etc.