

Pierre Machart

Post-doc, 27 years old

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Education

Academic Background

- 2009–2012 **Ph.D. Student**, *Machine Learning*, Laboratoire d'Informatique Fondamentale, Laboratoire des Sciences de l'Information et des Systèmes, Aix-Marseille University.
Coping with the Computational and Statistical Bipolar Nature of Machine Learning.
- 2008–2009 **M.Sc.**, *Acoustics, Signal Processing, Computer Science Applied to Music*, Pierre et Marie Curie University, IRCAM, Paris.
Formal and cognitive sciences (psychoacoustics, perception) and humanities (sociology, musicology) applied to music.
- 2004–2007 **Graduate Engineer (eq. to M.Sc.)**, *Software engineering and networks*, École Nationale Supérieure de Physique, Strasbourg.
Fundamental and applied physics, signal processing, electronics. Software development, database, networking and system architecture.

Miscellaneous

- 2011 (2 weeks) **Machine Learning Summer School**, *MLSS 2011*, Bordeaux, France.
- 2011 (3 days) **Machine Learning Workshop**, *Learning Theory, State of the Art Workshop*, Paris, France.
- 2011 (3 days) **Machine Learning Workshop**, *Statlearn'11: Workshop on "Challenging problems in Statistical Learning"*, Grenoble, France.
- 2011, 2012 (2x3 days) **Multimodal Information Summer School**, *ERMITES'10: "Vision & Cognition", ERMITES'11: "Sparse Decomposition, Contraction and Structuration for Complex Scene Analysis"*, Giens, France.
- 2010 (10 days) **Machine Learning Bootcamp**, *Pascal Bootcamp'2010*, Marseilles, France.
- 2010 (1 week) **Machine Learning Spring School**, *EPAT'2010*, Cap Hornu, France.

Experience

Research

- 2013–present **Postdoctoral position**, *PANAMA team*, INRIA, Rennes.
Development of mathematical models and algorithms for acoustics and audio processing applications.
- 2009 (4 months) **M.Sc. internship**, *Musical Interaction, Real-Time team*, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), Paris.
Subject: Morphological segmentation and classification of musical streams.
Active semi-supervised learning using graphical temporal models (Segmental HMM), with applications to contemporary music and environmental sounds.
- 2007 (6 months) **Graduate engineer internship**, *Institut National de l'Audiovisuel (INA)*, Bry-sur-Marne, Visualization, Interaction and Experimentation team.
Subject: Audio classification automatic system (speech and music).
Design and development of a complete solution for audio segmentation, using state-of-the-art methods (SVM) and descriptors, with applications to real audiovisual data (TV shows archives).

Teaching

2010–2012 **Teaching Assistant**, *Aix-Marseilles University*.

Practical sessions and evaluation of the “Introduction to Data Mining” course for the 2nd year master students in "Advanced Computer Science and Applications".

Classes, seminars, practical sessions of the “Introduction to Machine Learning“ class (kernel methods) for the 1st year master students in ”Computer Science“.

Classes, seminars, practical sessions of the ”Introduction to Data Mining“ class for the 3rd year bachelor students and 1st year master students in ”Computer Science“.

Miscellaneous

2010 **Member of the organisation committee**, *Pascal Bootcamp'2010*, Marseilles.

2011–2012 **Member of the organisation committee**, *ERMITES'11 and ERMITES'12*, Giens, Porquerolles.

2008 (3 months) **IT Consultant**, *Beijaflore*, Paris, Finance department.

Quality assessment, development, integration of an information system in a bank.

2006 (6 months) **Consultant, Budget management**, *Rhenaphotonics Alsace*, Strasbourg.

Prototyping a virtual reality immersive cube.

Languages

French Native

English Fluent

Computer skills

Development Matlab, C, C++, Python, VB.NET, XML, UML.

Web HTML, javascript, PHP, ASP.NET.

Software Visual Studio.NET, Maple, Labview, LaTeX.

Database MySQL, SQL Server 2005.

Interests

Musical practice Piano, tabla, sitar, guitar.

Misc. Travel, cinema.

Publications

- [1] Pierre Machart, Sandrine Anthoine, and Luca Baldassarre. Optimal computational trade-off of inexact proximal methods. Submitted.
- [2] Pierre Machart, Thomas Peel, Sandrine Anthoine, Liva Ralaivola, and Hervé Glotin. Apprentissage stochastique de noyau de rang faible pour la régression. In *Conférence Francophone d'Apprentissage (CAp)*, 2011.
- [3] Pierre Machart, Thomas Peel, Sandrine Anthoine, Liva Ralaivola, and Hervé Glotin. Stochastic low-rank kernel learning for regression. In *International Conference on Machine Learning*, 2011.
- [4] Pierre Machart and Liva Ralaivola. Confusion matrix stability bounds for multiclass classification. Submitted.