

# Curriculum Vitæ

**François Pachet**

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Founder, Flow Records Man Machine

## **Professional address:**

42 rue Albert Thomas, 75010 Paris

French, 2 children

## **Professional Interests**

My scientific interests concern computers and creativity. I investigate these issues by designing, building and experimenting with software systems. I was associate Professor at Université Pierre et Marie Curie (UPMC) until 1997 where I studied the integration of inference techniques (rules, constraints) in object-oriented languages for knowledge representation. In 1997, I set up a research team at SONY Computer Science Laboratories to focus on music listening and interaction and became director of Sony CSL in 2014. In 2012, thanks to an ERC Advanced Grant, I conducted the Flow-Machines project to explore style modeling and manipulation. This project led to the first produced pop songs composed with AI and the creation of the first music label dedicated to the professional use of AI for music production. I then headed a 10-person research lab in Spotify, to design the next generation of AI-based tools for music creation, and the first music title orchestrated with Spotify AI was released in June 2019.

## **Positions**

2023-present **Founder**, Flow Records, Ynosound, ImagineAllThePeople

2017-2023 **Director**, Spotify - Creator Technology Research Lab (Paris), a research laboratory, created in 2017, dedicated to research in music creation with artificial intelligence

2014-2017 **Director**, SONY CSL (Computer Science Laboratories) Paris, a basic research laboratory created in 1996 dedicated to basic research in computer science

2014-2017 **Invited Professor**, Universidade Federal de Pernambuco, Recife (Brazil) through a "Pesquisador Visitante Especial" grant of CNPq, Science Without Borders Program, Brazil. This program aims to attract senior foreign researchers recognized internationally as leaders in their areas

2014-2015 **Professor**, Goldsmiths College, University of London (part-time)

2013 **Deputy Director**, SONY CSL

2005 **Senior Researcher** at SONY CSL. Author of over [200 publications](#) in journals and international conferences in the domains of Audio, Music, Multimedia and Artificial Intelligence, including IJCAI, AAAI, Com. of ACM, IEEE Trans. on ASLP, JASA, ISMIR, and 5

monographs

1997 **Researcher** at SONY CSL, Paris. Creator of the music team (12 persons) with the mission to invent novel music listening and interaction technologies Author and co-author of **40 patents** filed by SONY Corporation (Europe and USA) on audio feature extraction, electronic music distribution and music interaction

1993-1997 **Assistant Professor (Maître de conférences)** in Computer Science at UPMC, LIP6, 1<sup>st</sup> class. **Author** and co-author of several artificial intelligence systems, distributed by UPMC: *NéOpus* (inference engine in Smalltalk), *BackTalk* (combinatorial optimization with Pierre Roy), *MusES* (musical object library)

1992-1993 **Post-doctoral researcher** at Université du Québec à Montréal. Research on the Cyc project (common sense representation, Douglas Lenat, MCC) and its application to text generation, with Hafedh Mili

**Consultant** with OTI (Object Technology International, now IBM Ottawa Software Lab), on rule-based systems

1991-1992 **ATER** (Temporary Research Assistant) at UPMC

1989-1991 **Moniteur** (teaching assistant) at UPMC

1987-1988 **Professor of Computer Science**, University of Kuala-Lumpur (Malaysia), during my military service (French cooperation). Master level courses in A.I.

## Publications

- 5 monographies, 7 edited books, 23 book chapters, 50 high impact journal papers, 41 high impact conference papers), see [this link](#)
- **40 Granted patents** for Sony Corporation
  - o US6794566 (9/21/2004) Information type identification method and apparatus, e.g. for music file name content identification [**324 citations** by other patents].
  - o US20080126937A1 (10/05/2004) Content management interface [**242 citations**]. Describes a user interface to access music by gesture.
  - o US7034217B1 (4/25/2006) Automatic music continuation method and device [**41 citations** by other patents]. This patent describes the Continuator. This system pioneered the use of interactive machine learning for music improvisation.
  - o US7624012 (11/24/2009) Function Pattern Generator [**34 citations** by other patents]. This patent describes audio feature generation. It was extended by over 10 patents in Japan, and the technology was transferred to Sony Corp. for many products (PS3, Hifi, digital cameras).
- Over **10 granted patents** for Spotify AB

## Inventions

- **LSDB**, the first comprehensive database of lead sheets in many styles (pop, jazz, Brazilian music), designed to feed machine-learning score generators. Currently the

largest collection of lead sheets in electronic format (over 14,000)

- **ReflexiveLooper** (with M. Marchini), a system that learns in real time the style of a musician and generates automatically lead sheet based accompaniments. Semi-finalist of the Guthman Instrument Competition, Atlanta. CHI 2013 best paper award.
- **FlowComposer** (with P. Roy), a system to compose lead sheets in the style of arbitrary composers, used for composing a Pop album, and for the musical “Beyond the Fence”, premiered in the Arts Theatre, London, February 2016 (prod. by Sky Arts / Wingspan). *“It’s truly impressive” said jazz guitarist Pat Metheny, commenting on a track programmed by Pachet’s team (The Atlantic, Aug. 2014).*
- **ReChord** (with M. Ramona), a system to record audio for style capture and generation of audio accompaniments
- **Virtuoso**, a jazz solo generator in my style
- **EDS**, the first audio feature generation system (technology transferred to SONY Corp.),
- **MusicBrowser**, the first content-based music access system, with extraction of musical descriptors from the audio signal
- **Continuator**, an interactive music improvisation system. Experimented with many professional musicians. Presented notably at the SIGGRAPH’03 conference and considered a reference in the domain of music interaction
- **MusicSpace** (with O. Delerue), a spatialization control system

## Invited Talks

Over 120 invited talks and keynote speeches, including: **Tedx** ISTAlameda, **Kikk** festival, European Commission **FET** seminar; **EPIA** 2015; **ICML** 2015 (International Conference on Machine Learning) **CML** workshop; Workshop on Cultural & Social Analytics, Imperial College; Colloquium Jacques Morgenstern, Inria Sophia Antipolis; **ArsMusica**, Brussels; CSL Open House at MOMA, NY, etc.

I created the tutorial series “*Why X is interesting*”, and delivered it for Jazz, Brazilian guitar and studio production. Since 2012 it was given 7 times at the ISMIR conference on various topics (Hip-hop, Greek music, flamenco, singing).

## Education

2006 **Auditor** of the 58<sup>th</sup> national session of Institut des Hautes Etudes en Défense Nationale (IHEDN). Appointed by Prime Minister. **Colonel** in the “réserve citoyenne” (French Air Force)

Sept. 1997 **Research Advisor Diploma** (Habilitation), UPMC. Thesis on: « Object-oriented languages and knowledge representation» supervisor: **J.-F. Perrot**

1992 **Ph.D.** UPMC, in Computer Science. Thesis: « Knowledge representation with objects and rules: the NéOpus system», supervisor: **J.-F. Perrot**

1987 **Master** (DEA) IARFAG (Artificial Intelligence), UPMC, with **J.-L. Laurière**, internship at IRCAM with **David Wessel** (U. California Berkeley)

1987 **Civil Engineer**, Ecole Nationale des Ponts & Chaussées. Major in Applied Mathematics

## Committee Memberships

- Scientific Advisory Board, [Enchanted Tools](#)
- Scientific Advisory Board, [Halbestunde](#)
- Co-chair of the AI in The Arts And Creativity, Ijcai 2023, 2024 and 2025 conference
- Co-chair of the workshop on AI and Creativity, Ecai 2024 conference
- General chair of the ICCC 2018 conference, Salamanca (Spain)
- Co-organizer of the Constructive Machine Learning (CML) workshops at NIPS 2016
- Advisory Board member of the FastImpact project (Mark Sandler, Queen Mary, U. London, a 5.2M€ EPSRC Programme grant)
- Advisory Board member to the European Research Area chair of Falmouth University (Simon Colton, 2.4M€)
- Advisory Board member to the ERCComics project about dissemination of ERC projects with web comics (Fiammetta Ghedini, 800k€)
- Creator and editor of the Springer book series “Computational Synthesis and Creative Systems”
- Member of the ICCC steering committee
- Program chair of the ICCC 2016 conference held in UPMC, Paris, June 2016 (100 attendants)
- Co-chair of the AI & Arts track at IJCAI 2015, Buenos Aires, Argentina
- Associate editor/editorial board, ACM Computers in Entertainment; Journal of Music and Meaning
- Expert at the European Commission for the evaluation and review of projects in the IST programmes and for consultations (Creativity Unit, FET, FP6/7, E-content)
- Member of over 60 PhD defense committees (MIT, UPMC, Ircam, etc.)

## Grants

Over 3.7 M€ in external funding in the last 10 years, including:

- ERC Proof of Concept Grant for the FlowMachines project, started March 2015
- ERC Advanced Grant for the FlowMachines project, started August 2012
- Co-PI of 5 European collaborative projects: Lrn2Cre8, Praise (“excellent” by the E.C), Miror (FP7, ranked 1<sup>st</sup> in its category), Semantic-Hifi, Cuidado (FP6)
- Co-PI of ARC-funded (Australian Research Council) project “Improvisational interfaces: Inspiring new forms of human-computer creativity” headed by Jon McCormack (Monash University, Australia), started 2016

## Fellowships, awards

2017 Doctor Honoris Causa, University Federal do Pernambuco, Recife, Brazil. 2016 AAI

2016 Best video award for the reorchestration of European Anthem “Ode to Joy” (with F. Ghedini)

2015 SONY Certificate of Appreciation “in recognition for excellent technology and experience in the successful development of the extraordinary EDS and ELFE machine

learning algorithms that has contributed outstandingly towards the Production Center in accomplishing the automation of functional inspection processes”

2014 Elected EurAI Fellow (European AI society) for “significant, sustained contributions to the field of artificial intelligence”

2014-2017 Invited Researcher, Universidade Federal de Pernambuco, Recife (Brazil) through a “**Pesquisador Visitante Especial**” grant of CNPq, Science Without Borders Program, Brazil. This program aims to attract senior foreign researchers recognized internationally as leaders in their areas

2013 IJCAI 2013 and AAAI 2013 **Best video award** (with F. Ghedini)

2012 CHI 2013 **Best paper honorable mention award**

2014-2015 Professor, **Goldsmiths College**, University of London

2007 Appointed **Chevalier des Arts et des Lettres**

2002 **Best Paper Award**, International Computer Music Conference

2000 **Best Software Prize**, Bourges music software competition (with O. Delerue)

1995-1997 **Doctoral supervision** fellowship, Ministry of National Education

1994-1995 Invited Professor, **Université de Montréal**, Mathematics and Operation Research Department

1992 **INRIA Post-doc fellowship**, Université du Québec à Montréal (Prof. H. Mili). 1991-1992 Research scholarship (ATER) at Laforia/Lip6 laboratory, UPMC

1989-1991 Teaching scholarship (Monitorat, UPMC)

## **Media**

About 150 media and press appearances (Wall Street Journal, Vanity Fair, Forbes, TechCrunch, Playboy, New York Times, Canal+, Europe 1, Sky Arts, ARTE, the Atlantic, BBC, leMonde, Vpro, La Recherche, Radio Canada, etc.).

I was portrayed as one of the “50 most influential French people in the world” in Vanity Fair, December 2017.

## **Supervision of Graduate Students and postdoctoral Fellows**

**Ph.D. (13):** Pierre Roy (1995-1998, UPMC), Olivier Delerue (1998-2002, UPMC/Ircam), Anne Liret (1997-2000, UPMC), Jean Carrive (1997-2000, UPMC), Aymeric Zils (2001-2004), Jean-Julien Aucouturier (2003-2006, UPMC), Giordano Cabral (2004-2007, UPMC), Tristan Jehan (2004-2005, MIT Media Lab), Sergio Krakowski (2006-2009, IMPA, Brazil), Gabriele Barbieri (2010-2013, University Bologna), Gaëtan Hadjeres (2014-2017, Ecole Polytechnique), Stéphane Rivaud (2016-, U. of Reims).

**Post-docs (7):** Alexandre Papadopoulos (2012-2017, UPMC), Fiammetta Ghedini

(2012-2014, Sony CSL), Marco Marchini (2014-2017, UPMC), Jason Sakellariou (2013-2017, UPMC), Stan Gorlow (2015-2016, Sony CSL), Simon Mouliéras (2015-2016, Sony CSL), Mathieu Ramona (2014-2017, Sony CSL).

I participated in 66 Ph.D. defense committees (MIT MediaLab, U. of Paris, Bordeaux, Edinburgh, etc.).

## Miscellaneous

**IMPACT FACTORS:** [H-index=55](#), as of Dec. 2024 (google scholar)

### LANGUAGES

French Native,

English Fluent, 640/660 at TOEFL. Working language,

Russian Institut des Langues Orientales (2 first years of DULCO). Courses at Institute Goubkina, Moscow (1987, fellowship from Ministry of foreign affairs)

### MUSIC

Semi-professional activity as composer and performer (jazz guitar).

Member of SACEM, the French society of music composers.

Founder and CEO of **Flow Records**, the first music label dedicated to AI-composed music.

2019 Development of **Spotify AI** technology used in the EP “American Folk Songs” (Benoît Carré), launched Sept. 2019

2018 Production of the first AI-composed album “Hello World” (Benoît Carré, featuring Stromae, Kiesza, etc.), launched Jan. 2018 (12M streams)

2017 Private courses with jazz virtuoso guitarist **Claude Barthélémy**

2016 Production with B. Carré of a song in the style of the Beatles using Flow Composer (*Daddy’s car*, 2M views on YouTube) and of the first AI-composed Pop multi-artist concert (Gaité Lyrique, October 27<sup>th</sup>)

2015 Production of a re-orchestration of Beethoven’s ”Ode to Joy” (European anthem) in 7 styles using Flow Machines, and demonstrated at the European Parliament for the 5000<sup>th</sup> ERC grantee ceremony

2014 Co-composer and performer of jazz album “Count on it” with **Mark d’Inverno**, launched Nov 1<sup>st</sup> 2014 at Pizza Express Jazz Club Soho, London, with **Gilad Atzmon** as special guest (sold out concert)

2014 Author or co-author of 3 music tutorials on jazz, on Brazilian guitar (with G. Cabral), and audio production presented in conferences (ISMIR) and Brasilia conservatory

2014 Composer and performer of Pop music album “Marie-Claire” with J.-C. Urbain (*les Innocents*) and C. Diran (*Lilicub*)

2013 Obtained the “Paris metro” license from RATP (Paris Transportation Public Company), the official authorization to play music in the Paris metro

2011 IJCAI reception jazz concert with Mark d’Inverno Quintet (Poble Espanol)

2009 Courses with jazz guitarist **Michel Perez**

2000-2002 I introduced the use of interactive AI in *festival d’Uzeste*, with performances with Continuator with **Bernard Lubat** and **György Kurtág Jr** 1996-1998 3 first years, music writing course of **Jean-Michel Bardez** (baroque harmony, counterpoint) at Conservatory of the X<sup>e</sup> arrondissement in Paris 1981 Summer session at **Berklee** College of Music, Boston. Courses in harmony, arranging, guitar

1978-1981 **Classical guitar**, Ecole Normale de Musique de Paris with **Roland Dyens**

#### **LITERATURE**

2018 Histoire d’une oreille, Buchet-Chastel, 2018. The first augmented book using Spotify codes, about the story of a musical ear.

2018 Max Order ou l’invention du style (co-author). Graphic novel realized in the context of the ERCcOMICS project.

2008 Comment je n’ai pas rencontré Paul McCartney, publie.net, edited by François Bon.