

Curriculum Vitæ



François Pachet

French, Born 10th January 1964 in Sainte-Adresse (France), 2 children.

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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 combination of object-oriented languages with inference techniques (rules, constraints) for knowledge representation. In 1997, I set up a research team at SONY Computer Science Laboratories to focus on music listening and interaction. In January 2012, I received an ERC Advanced Grant to explore the issue of style modeling and manipulation, to create novel authoring tools for music and literature. 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.

Professional Experience

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| 2014 | Director , SONY-CSL (Computer Science Laboratories) Paris, a basic research laboratory created in 1996 by Luc Steels and Mario Tokoro, offshoot of SONY CSL-Tokyo, dedicated to basic research in computer science. |
| 2013 | Deputy Director , SONY-CSL. |
| 2005 | Senior Researcher at SONY-CSL. Author of over 120 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 2 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 15 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 st 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.

Inventions

- **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).*
- **LSDB**, the largest collection of lead sheets in electronic format (over 14,000)
- **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 100 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 58th national session of Institut des Hautes Etudes en Défense Nationale (IHEDN). Appointed by Prime Minister. **Colonel** in the “réserve citoyenne” (French Air Force) since Sept. 2007

- 1997 **Research Advisor Diploma** (Habilitation), UPMC. Thesis on: « Object-oriented languages and knowledge representation»
- 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
- 1982 Mathématiques spéciales, Lycée Janson de Sailly, Paris

Committee Memberships

- **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
- **Associate editor/editorial board**, Springer AI review journal; 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 1st 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

- 2016 AAAI 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 Fellow of ECCAI (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 [60 media and press appearances](#) (Wall Street Journal, Forbes, TechCrunch, Sky Arts, ARTE, New York Times, the Atlantic, BBC, leMonde, Vpro, La Recherche, Radio Canada, etc.).

Miscellaneous

IMPACT FACTORS: [H-index = 40](#), G-index = 73, as of April 2017 (google scholar)

LANGUAGES

French	Native
English	Fluent, 640/660 at TOEFL. Working language.
Russian	Studied at Institut des Langues Orientales (2 first years of DULCO). Courses at Institute Goubkina, Moscow (1987, fellowship from Ministry of foreign affairs)

LITERATURE

2018	<u>Histoire de ma musique</u> , an augmented book about the ontogenesis of a musical ear, published by Buchet-Chastel, 2018.
2008	<u>Comment je n’ai pas rencontré Paul McCartney</u> , publie.net, edited by François Bon.

MUSIC

	Semi-professional activity as composer and performer (jazz guitar). Member of SACEM, the French Society of music composers.
2017	Creation and management of a recording and publishing label, dedicated to AI-composed music. Production of the first AI-composed album (Benoît Carré).
2016	Production with Benoit Carré of a new song in the style of the Beatles using FlowComposer (1.5M views on YouTube) and of the first AI-composed Pop multi-artist concert (Gaité Lyrique, October 27 th)

- 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 5000th ERC grantee ceremony
- 2014 Co-composer and performer of jazz album "[Count on it](#)" with **Mark d'Inverno**, launched Nov 1st 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 (with E. Deruty) 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 Performances with Continuator at Uzeste Festival with **Bernard Lubat** and **G. Kurtag Jr**
- 1996-1998 3 first years, music writing course of **Jean-Michel Bardez** (baroque harmony, counterpoint) at Conservatory of the X^e 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**