

Pierre Donat-Bouillud

Education

- 2016 – 2019 **PhD**, *Sorbonne Université*, Paris, *Models, Analysis and Execution of Audio Graphs in Interactive Multimedia Systems*.
At Ircam, STMS laboratory, Repmus group. Supervized by Florent Jacquemard and Jean-Louis Giavitto.
- 2016 – 2019 **Awarded ENS Rennes PhD Scholarship**.
August – **Real-time Systems Summer School**, *Télécom ParisTech*, Paris.
September
2017
- November
2015 **EMSIG autumn school on cyberphysical systems**, *Aalborg University – Technical University of Denmark*, Copenhagen.
- 2013–2015 **Master’s degree (MSc) in computer science (Advanced Degree)**, *Ecole normale supérieure de Rennes*, Rennes.
Former ENS Cachan Brittany branch. It is one of four highly competitive and top ranked French higher institutions which prepare students to become professors/researchers.
- 2012–2013 **Bachelor’s degree (BSc) in computer science (Advanced Degree)**, *Ecole normale supérieure de Rennes*, Rennes.
- 2012–2016 **Awarded State Scholarship of Excellence - “normalien” status**.
- 2010–2012 **Post-secondary preparatory classes**, *Lycée Henri IV*, Paris.
 - University-level courses required in preparation for competitive entrance exams into top engineering and graduate schools (France’s “Grandes écoles”)
 - Main subjects studied: maths, physics, computer science
- 2010 **Baccalauréat**, *Lycée Henri IV*, Paris.
Main diploma required to pursue University studies.

Research experience

- May 2020–
today **Postdoctoral researcher**, *Czech Technical University*, Prague.
Programming languages research
- September
2019 –
November
2019 **Researcher**, *Inria*, Paris.
- September
2016 –
August 2019 **PhD student researcher**, *Sorbonne Université*, Paris.

- May– September 2019 **Research assistant**, *Haute Ecole de Musique*, Genève.
Organized international workshop *Gesture, Capture and Notation*
- September 2016 – November 2019 **Teaching assistant**, *Sorbonne Université*, Paris.
Practical sessions and courses mainly for bachelor students. Supervized first year master students.
- January–June 2016 **Research intern**, *Paris Lodron University*, Salzburg.
Worked on adaptative scheduling in multimedia system: designed a degradation algorithm for audio graphs. Supervisor: Christoph Kirsch
- September–December 2015 **Research intern**, *Ircam*, Paris.
Studied buffer types for audio processing in Antescofo. Supervisors: Florent Jacquemard and Arshia Cont
- Fébruary–June 2015 **Research intern**, *Ircam*, Paris.
Built an audio processing framework for Antescofo and devised a static analysis on Antescofo programs to check schedulability of audio tasks. Supervisors: Florent Jacquemard and Arshia Cont
- May–August 2014 **Research intern**, *University College London*, London.
Automatic music analysis: developed new methods based on compression to find dependencies among patterns in a score. Supervisor: Nicolas Gold
- 2013–2014 **1st year of master’s research project**, *ENS Rennes – Inria Rennes – Rennes 1 University*, Rennes.
Reviewed job schedulers in Hadoop and created and evaluated new ones. Supervisor: Shadi Ibrahim
- Mai–Juillet 2013 **Research intern**, *Ircam*, Paris.
Designed and implemented a new algorithm based on rewrite rules on rhythm trees to transcribe musical events in audio or midi, into rhythms on a score. Supervisors: Florent Jacquemard and Jean Bresson

Research interests

- Formal semantics for timed languages, types, static analysis
- Symbolic representations for music
- Processing, synthesis and analysis of sound
- Scheduling for real-time systems

Publications

- [1] Pierre Donat-Bouillud, Florent Jacquemard, and Masahiko Sakai. Towards an Equational Theory of Rhythm Notation. In *Music Encoding Conference 2015*, Florence, Italy, May 2015.
- [2] Florent Jacquemard, Pierre Donat-Bouillud, and Jean Bresson. A Structural Theory of Rhythm Notation based on Tree Representations and Term Rewriting. In David Meredith Tom Collins and Anja Volk, editors, *Mathematics and Computation in Music: 5th International Conference, MCM 2015*, volume 9110 of *Lecture Notes in Artificial Intelligence*, page 12, London, United Kingdom, June 2015. Oscar

Bandtlow and Elaine Chew, Springer.

- [3] Florent Jacquemard, Pierre Donat-Bouillud, and Jean Bresson. A Term Rewriting Based Structural Theory of Rhythm Notation. Research report, ANR-13-JS02-0004-01 - EFFICACe, March 2015.
- [4] Nathanaël Cherière, Pierre Donat-Bouillud, Shadi Ibrahim, and Matthieu Simonin. On the Usability of Shortest Remaining Time First Policy in Shared Hadoop Clusters. In *SAC 2016-The 31st ACM/SIGAPP Symposium on Applied Computing*, Pisa, Italy, April 2016.
- [5] Pierre Donat-Bouillud, Jean-Louis Giavitto, Arshia Cont, Nicolas Schmidt Gubbins, and Yann Orlarey. Embedding native audio-processing in a score following system with quasi sample accuracy. In *Proceedings of the International Computer Music Conference*. ICMC, September 2016.
- [6] Pierre Donat-Bouillud and Jean-Louis Giavitto. Typing heterogeneous dataflow graphs for static buffering and scheduling. In *ICMC 2017 - 43rd International Computer Music Conference*, Shanghai, China, October 2017.
- [7] Pierre Donat-Bouillud and Christoph M Kirsch. Work-in-progress: Adaptive scheduling with approximate computing for audio graphs. In *2017 IEEE Real-Time Systems Symposium (RTSS)*, pages 372–374. IEEE, 2017.
- [8] Pierre Donat-Bouillud. Ordonnancement adaptatif d'un graphe audio avec dégradation de qualité. In *JIM 2018 - Journées d'Informatique Musicale*, pages 1–9, Amiens, France, May 2018.
- [9] Pierre Donat-Bouillud, Jean-Louis Giavitto, and Florent Jacquemard. Optimization of audio graphs by resampling. In *DAFx 2019 - International Conference on Digital Audio Effects*, Birmingham, United Kingdom, September 2019.
- [10] José Miguel Fernandez, Jean-Louis Giavitto, and Pierre Donat-Bouillud. AntesCollider: Control and Signal Processing in the Same Score. In *ICMC 2019 - International Computer Music Conference*, New York, United States, June 2019.

Teaching experience

- January– April 2019 Designed and supervised 1-st year master projects for two groups of students in the PSTL track (software engineering). One project deals with visualization of execution and trace of execution of an Antescofo program. The other one tackles parallelization of audio graphs.
- September– December 2018 Fundamentals of programming 1, practical sessions. First computer science course for first year bachelor students. Basics of computer science, in Python.
- January– December 2018 Web technologies course for 3rd year bachelor students. Students have to create a Twitter-like website using Java, Javascript, SQL, MongoDB.
- January–April 2018 Programming models and interoperability of languages, for 3rd year bachelor students. Mainly an OCaml course.

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in [pierredonatbouillud](https://www.linkedin.com/in/pierredonatbouillud)

- September– December 2017 Programming and data structures in C, practical sessions, for 2nd year bachelor students. An advanced C course.
- September– December 2017 Fundamentals of Programming 1
- January–April 2017 Web technologies
- January–April 2017 Models of programming and interoperability of languages
- September– December 2016 Fundamentals of programming 1

Seminars

- October 2019 Course – workshop on Antescofo at Tchaikovsky Conservatory in Moscow
- November 2018 Course – workshop on Antescofo at Tchaikovsky Conservatory in Moscow and at the French Institute in Saint-Petersburg
- February 18th, 2016 Course – workshop on Antescofo at CNMAT, UC Berkeley
- February 22nd, 2016 New features and current research on Antescofo at CCRMA, Stanford University

Administrative duties

- 2016–2019 Representative of the PhD students at the council of the STMS institute.

Grants and awards

- June 2019 Best presentation award for [10] at ICMC 2019
- March 2016 BMVIT grant (Austrian ministry for transports, innovation and technology) to attend the conferences of CPS Week 2016

Languages

French	Native tongue	
English	Fluent	<i>TOEIC 2013 : 950/990</i>
Spanish	Moderate	
Russian	B1	<i>CLES 1 in 2017</i>
Latin	Only written	<i>First prize high school category at the European competition Cicero 2008</i>
Ancient Greek	Only written	<i>Distinction at French national Ancient Greek competition Concours général de grec 2009</i>

Computer skills

Programming languages Ocaml, C, C++, Rust, Java, Python, Bash Web HTML/CSS
Environments GNU/Linux (Gentoo, Debian), MS Windows, macOS
Misc \LaTeX , tikz, pgfplots, beamer, LibreOffice, emacs

Interests

Music

Since 2001 French horn player

2012–2015 **Harmony and Counterpoint**, *Regional conservatory of music*, Rennes.

Sport

Handball Referee for the local French University sport federation in 2012–2013 in Rennes