# Curriculum Vitae
# Beniamino Accattoli

***Date and Place of Birth:*** 19th May 1981, Rome (Italy).
***Nationality:*** Italian.
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## *Currently:*
Researcher (CR) at INRIA Saclay & Ecole Polytechnique, PARTOUT team, since January 2015.

## *Research Areas:*
Lambda Calculus, Linear Logic, Rewriting Theory, Abstract Machines, Functional Programming Languages, Graphical Syntaxes.

## *Ph.D.:*
- ***School:*** Ph.D. Program of the Computer Engineering Department of La Sapienza University (Rome).
- ***Financed by***: Computer Engineering Department of La Sapienza University (Rome).
- ***Title*****:** ***Jumping around the box: graphical and operational studies on Lambda Calculus and Linear Logic***.
- ***Advisor:*** Stefano Guerrini.
- ***Starting date:*** November 1st, 2006.
- ***Thesis submitted:*** October 1st, 2010 (end of the 4th year).
- ***Defense date:*** February 17th, 2011.
- ***Thesis reviewers: Olivier Laurent*** and ***Simone Martini***.

## *Education:*
- ***October 2013-September 2014:*** Post-doc at University of Bologna, under the supervision of prof. Andrea Asperti and Ugo Dal Lago.
- ***September 2012-August 2013:*** Post-doc at Carnegie Mellon University, under the supervision of prof. Frank Pfenning.
- ***September 2011-August 2012:*** Post-doc at INRIA, PARSIFAL team, LIX (Ecole Polytechnique), under the supervision of prof. Dale Miller.
- ***September 2010-August 2011*****:** Temporary research and teaching position (ATER) in Computer Science at Paris 13 University.
- ***September 2009-August 2010*****:** Temporary research and teaching position (ATER) in Computer Science at Paris 7 University (during the 4th year of my PhD).
- ***2006-2011:*** Ph.D in Computer Engineering at La Sapienza University (Rome) under the supervision of Stefano Guerrini.
- ***2000-2006:*** Degree (summa cum laudae) in Computer Science at La Sapienza University

(Rome).

## ***Publications*** (dblp entry and google scholar)***:***

*In journals:*

1. Accattoli B., Graham-Lengrand S., Kesner D., ***Tight typings and split bounds***. Journal of Functional Programming, vol. 30 (special issue of ICFP 2018), 2020.
2. Accattoli B., Guerrieri G, ***Abstract Machines for Open Call-by-Value***. Science of Computer Programming 184 (special issue of FSEN 2017), 2019.
3. Accattoli B., Sacerdoti Coen C., ***On the Value of Variables***. *Information & Computation*, vol. 255 (special issue of WoLLIC 2014), pp. 224-242, 2017.
4. Accattoli B., Dal Lago U., ***(Leftmost-Outermost) Beta Reduction is Invariant, Indeed***. *Logical Methods in Computer Science*, vol 12-1 (special issue of CSL-LICS 2014), 2016.
5. Accattoli B., ***Proof nets and the call-by-value lambda calculus***. *Theoretical Computer Science*, vol. 606 (special issue of LSFA 2012), pp. 2-24, 2015.
6. Accattoli B. and Kesner D., ***Preservation of strong normalisation modulo permutations for the structural lambda-calculus***, Logical Methods in Computer Science 8-1, 2012.

*In conference proceedings:*

1. Accattoli B, Dal Lago U., Vanoni G., ***Multi Types and Reasonable Space***. ICFP 2022. *Distinguished paper award*.
2. Accattoli B., Guerrieri G., ***The Theory of Call-by-Value Solvability***. ICFP 2022.
3. Accattoli B., ***Exponentials as Substitutions and the Cost of Cut Elimination in Linear Logic***. LICS 2022.
4. Accattoli B., Dal Lago U., Vanoni G., ***Reasonable Space for the lambda-Calculus, Logarithmically***. LICS 2022.
5. Accattoli B., Leberle M., ***Useful Open Call-by-Need***. CSL 2022.
6. Accattoli B., Condoluci A., Sacerdoti Coen C., ***Strong Call-by-Value is Reasonable, Implosively***. LICS 2021.
7. Accattoli B., Dal Lago U., Vanoni G., ***The Space of Interaction***. LICS 2021.
8. Accattoli B., Dal Lago U., Vanoni G., ***The (In)Efficiency of Interaction***. POPL 2021.
9. Accattoli B., Faggian C., Guerrieri G., ***Factorize Factorization***. CSL 2021.
10. Accattoli B., Dal Lago U., Vanoni G., ***The Machinery of Interaction***. PPDP 2020.
11. Accattoli B., Díaz-Caro A., ***Functional Pearl: the Distributive Lambda Calculus***. FLOPS 2020.
12. Accattoli B., Faggian C., Guerrieri G., ***Factorization and Normalization, Essentially***. APLAS 2019.
13. Condoluci A., Accattoli B., Sacerdoti Coen C., ***Sharing Equality is Linear***. PPDP 2019.
14. Accattoli B., Condoluci A., Guerrieri G., Sacerdoti Coen C., ***Crumbling Abstract Machines***. PPDP 2019.
15. Accattoli B., Guerrieri G., Leberle M., ***Types by Need***. ESOP 2019.
16. Accattoli B., ***A Fresh Look at the Lambda Calculus***. FSCD 2019. *Invited paper*.
17. Accattoli B., Guerrieri G., ***Types of Fireballs***, APLAS 2018.
18. Accattoli B., ***Proof Nets and the Linear Substitution Calculus***, *ICTAC 2018*.
19. Accattoli B., Graham-Lengrand S., Kesner D., ***Tight typings and split bounds***. *ICFP 2018*.
20. Accattoli B., Barras B., ***Environments and the complexity of abstract machines***. PPDP 2017.
21. Accattoli B., Barras B., ***The Negligible and Yet Subtle Cost of Pattern Matching***, APLAS 2017.
22. Accattoli B., Guerrieri G., ***Implementing Open Call-by-Value***. FSEN 2017.
23. Accattoli B., Guerrieri G., ***Open Call-by-Value***. APLAS 2016.

24. Accattoli B., ***The Useful MAM, a Reasonable Implementation of the Strong Lambda-Calculus***. WoLLIC 2016.
25. Accattoli B., Barenbaum P., Mazza D., ***A Strong Distillery***. APLAS 2015.
26. Accattoli B., Sacerdoti Coen C., ***On the Relative Usefulness of Fireballs***, LICS 2015.
27. Accattoli B., Barenbaum P., Mazza D., ***Distilling Abstract Machines***, ICFP 2014.
28. Accattoli B., Sacerdoti Coen C., ***On the Value of Variables***, WoLLIC 2014.
29. Accattoli B., Dal Lago U., ***Beta-reduction is invariant, Indeed***, CSL-LICS 2014.
30. Accattoli B., Bonelli E., Kesner D., Lombardi C., ***A Nonstandard Standardization Theorem***, POPL 2014.
31. Accattoli B., ***Compressing Polarized Boxes***, LICS 2013.
32. Accattoli B., ***Linear Logic and Strong Normalization***, RTA 2013. *Best paper award*.
33. Accattoli B., ***Proof pearl: Abella formalization of lambda-calculus cube property***, CPP *2012.*
34. Accattoli B., ***An abstract factorization theorem for explicit substitutions***, RTA 2012.
35. Accattoli B. and Dal Lago U., ***On the Invariance of the unitary cost model for head reduction***, RTA 2012.
36. Accattoli B. and Paolini L., ***Call-by-value solvability, revisited***, FLOPS 2012.
37. Accattoli B. and Kesner D., ***The permutative lambda-calculus***, LPAR 2012.
38. Accattoli B. and Kesner D., ***The structural lambda calculus***, CSL 2010.
39. Accattoli B. and Guerrini S., ***Jumping boxes. Representing lambda-calculus boxes by jumps***, CSL 2009.

*In international workshops:*

1. Accattoli B., ***(In)Efficiency and Reasonable Cost Models***, LSFA 2017. *Invited paper.*
2. Accattoli B., ***The Complexity of Abstract Machines***, WPTE 2016. *Invited paper.*
3. Accattoli B., ***Evaluating Functions as Processes***, TERMGRAPH 2013.
4. Accattoli B., **Proof Nets and the Call-By-Value Lambda Calculus**, LSFA 2012.

## *Research Projects:*

- COCA HOLA: Principal Investigator of the 4 years ANR JCJC project ***COst models for Complexity Analyses of Higher-Order LAnguages***, October 2016-March 2021.

## *Invited Speaker:*

- Linear Logic Winter School 2022, January 28th, 2022, Luminy, France.
- 5th International Workshop on Trends in Linear Logic and Applications (TLLA 2021), June 27-28th, 2021, Rome, Italy.
- 3rd International Conference on Formal Structures for Computation and Deduction (FSCD 2019), June 24-30, 2019, Dortmund, Germany.
- 12th Workshop on Logical and Semantic Frameworks with Applications (LSFA 2017), September 23-24, 2017, Fortaleza, Brazil.
- 3rd International Workshop on Rewriting Techniques for Program Transformations and Evaluation (WPTE 2016), June 23rd, 2016, Porto, Portugal.
- 16th International Workshop on Logic and Computational Complexity (LCC 2015), July 4-5, 2015, Kyoto, Japan.
- 3rd International Workshop on Confluence (IWC 2014), July 13, 2014, Vienna, Austria.
- 2 invited talks at the Chocola meeting at the ENS Lyon, one on the 14th November 2013 and one on the 1st October 2015.

## ***Chairing**:*

- Co-chair of PPDP 2022: 24th International Symposium on Principles and Practice of Declarative Programming, to be held on the 20th-22nd September 2022, Tbilisi, Georgia.
- Co-chair of *LSFA 2018:* 13th Workshop on Logical and Semantic Frameworks with Applications, September 26-28 in Fortaleza, Brazil.
- Co-chair of *IWC 2017*: the 6th International Workshops on Confluence, September 8th 2017 in Oxford, United Kingdom.
- Co-chair of *IWC 2016*: the 5th International Workshops on Confluence, September 8-9, 2016, Obergurgl, Austria.

## ***Program Committees**:*

- *APLAS 2022:* the 20th Asian Symposium on Programming Languages and Systems, to be held on the 5-10th of December 2022, Auckland, New Zealand.
- *LSFA 2022*: the 17th International Workshop on Logical and Semantic Frameworks, with Applications, to be held on September 23-24 2022, Belo Horizonte, Brazil.
- *IWC 2021*: the 9th International Workshops on Confluence, July 23rd 2021, Buenos Aires, Argentina.
- *TERMGRAPH 2020*: the 11th International Workshop on Computing with Terms and Graphs, 5th of July in Paris, France.
- *IWC 2020*: the 9th International Workshops on Confluence, 30th June 2020 in Paris, France.
- *LSFA 2020:* 15th Workshop on Logical and Semantic Frameworks with Applications, August 27-28 2020 in Salvador de Baia, Brazil.
- *LSFA 2019:* 14th Workshop on Logical and Semantic Frameworks with Applications, Aug 25-26th 2019, Natal, Brazil.
- *PPDP 2018*: 20th International Symposium on Principles and Practice of Declarative Programming, to be held September 3-5 208 in Frankfurt, Germany.
- *DICE-FOPARA 2017*: 8th Workshop on Developments in Implicit Computational complExity and 5th Workshop on Foundational and Practical Aspects of Resource Analysis, to be held April 22–23 2017 in Uppsala, Sweden.
- *LOLA 2017*: the 8th Workshop on the Syntax and Semantics of Low-Level Languages, to be held June 19 th 2017 in Reykjavik, Iceland.
- *WPTE 2017*: 4th International Workshop on Rewriting Techniques for Program Transformations and Evaluation, to be held September 8th 2017 in Oxford, United Kingdom.
- *RTA-TLCA 2014: Joint 25th International Conference on Rewriting Techniques and Applications and 12th International Conference on Typed Lambda Calculi and Applications, July 14-17, 2014, Vienna, Austria.*
- *TERMGRAPH 2014: 8th International Workshop on Computing with Terms and Graphs, July 12-13, 2014, Vienna, Austria.*
- *HOR 2014: 7th International Workshop on Higher-Order Rewriting, July 12-13, 2014, Vienna, Austria.*

## ***Advising**:*

PhD students:

- *Gabriele Vanoni*, 1st November 2018 - today.
- *Maico Leberle*, 1st October 2017 - 31 January 2021, defended on May 7th 2021, link to the

thesis.
- *Andrea Condoluci*, 1st November 2016 - 31st October 2019, defended on the 2nd April 2020, link to the thesis.

Master students:
- *Maxime Vemclefs*, May - August 2021. Topic: formalization in the Abella proof assistant of results from the theory of the λ-calculus.
- *Riccardo Treglia*, March - May 2017. Topic: cost models for the call-by-need evaluation of open λ-terms.
- *Ameni Chtourou*, May - July 2016. Topic: formalization in the Abella proof assistant of abstract machines for the λ-calculus.
- *Horace Blanc*, May - September 2015. Topic: formalization in the Abella proof assistant of the simulation of the λ-calculus in the π-calculus.

## ***Languages**:*

Italian (*native*), French (*fluent*), English (*fluent*), Spanish (*intermediate*), Portuguese (*intermediate*).

## ***Teaching Activity**:*

I have been teaching a master level mini-course (16h) as part of a larger course on linear logic and models of computation at the Parisian Master of Research in Computer Science (MPRI) for five years, since 2017-18.

I taught at the
(https://eci2019.dc.uba.ar/programa.html)
I taught twice at the ***International School on Rewriting*** a mini-course on the complexity of beta-reduction. For the 2017 edition I taught a 3h course, for the 2018 edition a 4.5h course.

I was invited twice to teach a mini-course for Ph.D. students on my research. The course is:
- "***Linear Logic, Lambda-calculus and explicit substitutions***": 4 lectures.

And I taught it at:
- The university of Brasilia, in march 2012 (page with links to the slides: http://www.mat.unb.br/~ayala/TCgroup/events.html)
- The university of Buenos Aires, in october 2012 (page of the course: https://sites.google.com/site/lorellabs/events/cursobeniamino)

*Assistant teacher for the following courses:*
*2010-2011:*
- ***Computabilité and décidabilité***, course on computability and decidability for 3rd year students of the "Licence" in Computer Science at Paris 13 University, professor Christian Lavault.
- ***Systèmes 2***, course on operating systems for 3rd year students of the "Licence" in Computer Science at Paris 13 University, professor Thierry Hamon.
- ***Informatique de base***, course on C programming for 1st year students of the "Licence" in Computer Science at Paris 13 University, professor Kais Klai.
- ***Programmation impérative***, course on imperative programming for 1st year students of the "Licence" in Computer Science at Paris 13 University, professor Sébastien Guerif.

*2009-2010:*

- ***Structures de données et objets Java***, course on data structures and objects in Java for 1st year students of the "Licence" in Computer Science at Paris 7 University, professor Vlad Ravelomanana.
- ***Automates finis***, course on finite automata for 2nd year students of the "Licence" in Computer Science at Paris 7 University, professor Jean-Michel Autebert.

*2007-2008:*

- ***Algoritmi 1***, course on algorithms for 2nd year students of "Laurea Triennale" in Computer Science at La Sapienza University (Rome), professor Irene Finocchi.