





# MICHELE CHIARI

## Curriculum Vitae

 Politecnico di Milano, Edificio 22 – Via Golgi 42, 20133 Milano, Italy  
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 michele.chiari@polimi.it  
 <https://michiari.github.io/>

## EMPLOYMENT

11/2021 – PRESENT **PostDoc Researcher (Assegno di Ricerca)**  
POLITECNICO DI MILANO – MILANO, ITALY  
PIACERE H2020 Project (G.A. 101000162): Verification of Infrastructure as Code, work packages 3 and 4

## EDUCATION (DEGREE GRANTING)

11/2018 – 02/2022 **Ph.D. in Information Technology (cum laude, with scholarship)**  
POLITECNICO DI MILANO – MILANO, ITALY  
Thesis title: “Temporal Logic and Model Checking for Operator Precedence Languages: Theory and Applications”

2016 – 2018 **M.Sc. in Computer Science and Engineering (Laurea Magistrale LM-32, 110/110 cum laude)**  
POLITECNICO DI MILANO – MILANO, ITALY  
Thesis title: “Temporal Logic and Model Checking for Operator Precedence Words”

2013 – 2016 **B.Sc. in Computer Science (Laurea Triennale L-31, 110/110 cum laude)**  
UNIVERSITY OF PARMA – PARMA, ITALY  
Thesis title: “Automatic Generation of Test Data for Floating-Point Computations Involving Transcendental Mathematical Functions”

## EDUCATION (OTHER) AND ACHIEVEMENTS

22/09/2019 – 27/09/2019 **Heidelberg Laureate Forum**  
7TH EDITION  
Hosted by the Ruprecht Karl University of Heidelberg, Baden-Württemberg, Germany

2019 **Award for the Best Italian Master Thesis in Theoretical Computer Science**  
ITALIAN CHAPTER OF THE EATCS  
Title: *Temporal Logic and Model Checking for Operator Precedence Words*

01/2016 – 05/2016 **Study Abroad Program (undergraduate, with scholarship)**  
BOSTON COLLEGE – BOSTON, MA, USA  
Computer Science, Mathematics and Statistics courses

## JOURNAL PUBLICATIONS

- [1] Michele Chiari, Dino Mandrioli, and Matteo Pradella. A first-order complete temporal logic for structured context-free languages. *Log. Methods Comput. Sci.*, page 49, 2022. URL <https://arxiv.org/abs/2105.10740>. Accepted for publication. CORE Ranking: A (2020), Scimago: Q2 (2021).
- [2] Roberto Bagnara, Abramo Bagnara, Fabio Biselli, Michele Chiari, and Roberta Gori. Correct approximation of IEEE 754 floating-point arithmetic for program verification. *Constraints*, 2022. doi:10.1007/s10601-021-09322-9. To appear. CORE Ranking: A (2020), Scimago: Q2 (2021).
- [3] Roberto Bagnara, Michele Chiari, Roberta Gori, and Abramo Bagnara. A practical approach to verification of floating-point C/C++ programs with math.h/cmath functions. *ACM Trans. Softw. Eng. Methodol.*, 30(1):9:1–9:53, 2021. doi:10.1145/3410875. CORE Ranking: A\* (2020), Scimago: Q1 (2021).
- [4] Daniele Cattaneo, Michele Chiari, Gabriele Magnani, Nicola Fossati, Stefano Cherubin, and Giovanni Agosta. FixM: Code generation of fixed point mathematical functions. *Sustain. Comput. Informatics Syst.*, 29, Part B:100478, 2021. doi:10.1016/j.suscom.2020.100478. Scimago Ranking: Q1 (2021).

- [5] Michele Chiari, Dino Mandrioli, and Matteo Pradella. Operator precedence temporal logic and model checking. *Theor. Comput. Sci.*, 848:47–81, 2020. doi:10.1016/j.tcs.2020.08.034. CORE Ranking: A (2020), Scimago: Q2 (2021).
- [6] Stefano Cherubin, Daniele Cattaneo, Michele Chiari, and Giovanni Agosta. Dynamic Precision Autotuning with TAFFO. *ACM Trans. Archit. Code Optim.*, 17(2):10:1–10:26, 2020. doi:10.1145/3388785. CORE Ranking: B (2020), Scimago: Q2 (2021).
- [7] Stefano Cherubin, Daniele Cattaneo, Michele Chiari, Antonio Di Bello, and Giovanni Agosta. TAFFO: Tuning Assistant for Floating to Fixed Point Optimization. *IEEE Embedded Systems Letters*, 12(1):5–8, 2020. doi:10.1109/LES.2019.2913774. Scimago Ranking: Q2 (2021).

## CONFERENCE PUBLICATIONS

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- [8] Francesco Pontiggia, Michele Chiari, and Matteo Pradella. Verification of programs with exceptions through operator precedence automata. In *Proc. 19th Int. Conf. Software Engineering and Formal Methods, SEFM’21*, volume 13085 of *LNCS*, pages 293–311. Springer, 2021. doi:10.1007/978-3-030-92124-8\_17. CORE Ranking: B (2021).
- [9] Daniele Cattaneo, Michele Chiari, Nicola Fossati, Stefano Cherubin, and Giovanni Agosta. Architecture-aware precision tuning with multiple number representation systems. In *Proc. 58th ACM/IEEE Design Automation Conference, DAC’21*, pages 673–678. IEEE, 2021. doi:10.1109/DAC18074.2021.9586303.
- [10] Michele Chiari, Dino Mandrioli, and Matteo Pradella. Model-checking structured context-free languages. In *Proc. Int. Conf. on Computer Aided Verification, CAV’21, Part II*, volume 12760 of *LNCS*, pages 387–410. Springer, 2021. doi:10.1007/978-3-030-81688-9\_18. CORE Ranking: A\* (2021).
- [11] Daniele Cattaneo, Michele Chiari, Stefano Cherubin, Antonio Di Bello, and Giovanni Agosta. Feedback-driven performance and precision tuning for automatic fixed point exploitation. In *Proc. Int. Conf. on Parallel Computing, PARCO’19*, volume 36 of *Advances in Parallel Computing*, pages 299–308. IOS Press, 2019. doi:10.3233/APC200054. CORE Ranking: C (2021).
- [12] Michele Chiari, Dino Mandrioli, and Matteo Pradella. Temporal logic and model checking for operator precedence languages. In *Proc. 9th Int. Symposium on Games, Automata, Logics, and Formal Verification, GandALF’18*, volume 277 of *EPTCS*, pages 161–175. Open Publishing Association, 2018. doi:10.4204/EPTCS.277.12.

## WORKSHOP PUBLICATIONS AND POSTERS

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- [13] Gabriele Magnani, Daniele Cattaneo, Michele Chiari, and Giovanni Agosta. The impact of precision tuning on embedded systems performance: A case study on field-oriented control. In *PARMA-DITAM@HiPEAC 2021*, volume 88 of *OASICS*, pages 3:1–3:13. Dagstuhl, 2021. doi:10.4230/OASICS.PARMA-DITAM.2021.3.
- [14] Michele Chiari, Davide Bergamaschi, Dino Mandrioli, and Matteo Pradella. Linear temporal logics for structured context-free languages. In *Proceedings of the 21st Italian Conference on Theoretical Computer Science, Ischia, Italy, September 14-16, 2020*, volume 2756 of *CEUR Workshop Proceedings*, pages 115–121. CEUR-WS.org, 2020. URL [http://ceur-ws.org/Vol-2756/paper\\_11.pdf](http://ceur-ws.org/Vol-2756/paper_11.pdf).
- [15] Nicola Fossati, Daniele Cattaneo, Michele Chiari, Stefano Cherubin, and Giovanni Agosta. Automated precision tuning in activity classification systems: a case study. In *PARMA-DITAM@HiPEAC 2020*, pages 5:1–5:6. ACM, 2020. doi:10.1145/3381427.3381432.
- [16] Michele Chiari, Dino Mandrioli, and Matteo Pradella. Word- and Tree-based Temporal Logics for Operator Precedence Languages. In *Proceedings of the 20th Italian Conference on Theoretical Computer Science, ICTCS 2019, Como, Italy, September 9-11, 2019*, volume 2504 of *CEUR Workshop Proceedings*, pages 222–228. CEUR-WS.org, 2019. URL <http://ceur-ws.org/Vol-2504/paper25.pdf>.
- [17] Daniele Cattaneo, Antonio Di Bello, Michele Chiari, Stefano Cherubin, and Giovanni Agosta. Fixed point exploitation via compiler analyses and transformations: Poster. In *Proc. 16th ACM Int. Conf. on Computing Frontiers, CF’19*, pages 292–294, New York, NY, USA, 2019. ACM. doi:10.1145/3310273.3323424.

## CONFERENCE COMMITTEES

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- OOPSLA 2022 – Artifact Evaluation Committee + Extended Review Committee
- FIST@ICSA 2022 Workshop – Program Committee
- ECOOP 2022 – Artifact Evaluation Committee + Extended Review Committee
- ICST 2021 Poster Track – Program Committee
- OOPSLA 2021 – Artifact Evaluation Committee

## PEER REVIEW

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- The Programming Journal, Volume 7 – Artifact Evaluation Committee
- IEEE Software
- ACM Transactions on Software Engineering and Methodology (TOSEM)
- FormaliSE 2021 conference (subreviewer)
- International Journal of Cooperative Information Systems (IJCIS)
- SOFSEM 2020 conference (subreviewer)
- ACM Transactions on Database Systems (TODS)
- IEEE CLOUD 2019 conference (subreviewer)
- LATA 2019 conference (subreviewer)

## CONFERENCE TALKS (CONTRIBUTED)

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ESOC 2022	<b>Title: Developing a New DevOps Modelling Language to Support the Creation of Infrastructure as Code</b> On-line, Project Track. March 24, 2022
FIST 2022	<b>Title: Static Analysis of Infrastructure as Code: a Survey</b> On-line, ICSA 2022 Workshop. March 12, 2022
CAV 2021	<b>Title: Model-checking structured context-free languages</b> On-line. July 18-24, 2021
ICSE 2021	<b>Title: A practical approach to verification of floating-point C/C++ programs with math.h/cmath functions</b> On-line, Journal-First Track. May 25-28, 2021
PARMA-DITAM 2021	<b>Title: The impact of precision tuning on embedded systems performance: A case study on field-oriented control</b> On-line, held as part of HiPEAC 2021. January 19, 2021
ICTCS 2020	<b>Title: Linear temporal logics for structured context-free languages</b> On-line. September 14-16, 2020
ICTCS 2019	<b>Title: Word- and Tree-based Temporal Logics for Operator Precedence Languages</b> Como, Italy. September 9-11, 2019
GANDALF 2018	<b>Title: Temporal Logic and Model Checking for Operator Precedence Languages</b> Saarbrücken, Germany. September 26-28, 2018

## SUPERVISED STUDENTS

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2022	<b>Michele De Pascalis</b> M.Sc. Thesis, with Prof. Matteo Pradella
2021	<b>Francesco Pontiggia</b> M.Sc. Thesis, with Prof. Matteo Pradella
2020	<b>Davide Bergamaschi</b> M.Sc. Thesis, with Prof. Matteo Pradella

## TEACHING EXPERIENCE (ACADEMIC)

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09/2021 – 12/2021	<b>Teaching Assistant (24 hours, partially online)</b> POLITECNICO DI MILANO, ITALY Classroom exercise for the course “Principles of Programming Languages” (Scheme, Haskell and Erlang Programming) Prof. Matteo Pradella.
09/2021 – 12/2021	<b>Teaching Assistant (28 hours, partially online)</b> POLITECNICO DI MILANO, ITALY Classroom exercise for the course “Fondamenti di Informatica” (C Programming) Prof. Raffaella Mirandola.

- 05/2021 **Tutoring Activity (15 hours)**  
POLITECNICO DI MILANO, ITALY  
Development of the final project for the course “Algoritmi e Principi dell’Informatica”.
- 09/2020 – 12/2020 **Teaching Assistant (26 hours, partially online)**  
POLITECNICO DI MILANO, ITALY  
Classroom exercise for the course “Principles of Programming Languages”  
(Scheme, Haskell and Erlang Programming) Prof. Matteo Pradella.
- 09/2020 – 12/2020 **Teaching Assistant (28 hours, partially online)**  
POLITECNICO DI MILANO, ITALY  
Classroom exercise for the course “Fondamenti di Informatica”  
(C Programming) Prof. Raffaella Mirandola.
- 09/2019 – 12/2019 **Teaching Assistant (20 hours)**  
POLITECNICO DI MILANO, ITALY  
Classroom exercise for the course “Principles of Programming Languages”  
(Scheme, Haskell and Erlang Programming) Prof. Matteo Pradella.
- 09/2019 – 12/2019 **Teaching Assistant (20 hours)**  
POLITECNICO DI MILANO, ITALY  
Classroom exercise for the course “Fondamenti di Informatica”  
(C Programming) Prof. Raffaella Mirandola.
- 03/2019 – 09/2019 **Tutoring Sessions (30 hours)**  
POLITECNICO DI MILANO, ITALY  
Classroom exercise and tutoring for the course “Algoritmi e Principi dell’Informatica”  
(Formal Languages, Automata and Computability Theory;  
Algorithms and Data Structures) Prof. Dino Mandrioli.
- 05/2019 **Tutoring Activity (10 hours)**  
POLITECNICO DI MILANO, ITALY  
Development of the final project for the course “Algoritmi e Principi dell’Informatica”.
- 02/2018 – 06/2018 **Tutoring Sessions (24 hours)**  
UNIVERSITY OF PARMA, ITALY  
Classroom exercise for the course “Fondamenti dell’Informatica”  
(Principles of Programming Languages, Automata and Computability Theory) Prof. Roberto Bagnara.

## TEACHING EXPERIENCE (OTHER)

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- 05/2022 **Lectures and Exercise Classes (12 hours, online)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Digital Academy 2022 – Advanced Python Coding Course
- 02/2022 **Lectures and Exercise Classes (16 hours, online)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Digital Academy 2022 – Basic Python Coding Course
- 21/12/2021 – 25/01/2022 **Lectures and Exercise Classes (16 hours, online)**  
ITS INCOM, BUSTO ARSIZIO, ITALY  
Big Data Analysis and Data Engineering – Python Coding Course
- 11/2021 **Lectures and Exercise Classes (12 hours, online)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Digital Academy 2021 – Advanced Python Coding Course
- 07/2021 **Lectures and Exercise Classes (12 hours, online)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Digital Academy 2021 – Basic Python Coding Course
- 02/2021 – 03/2021 **Lectures and Exercise Classes (20 hours, online)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Digital Academy 2021 – Basic and Advanced Python Coding Courses
- 10/2020 – 12/2020 **Lectures and Exercise Classes (24 hours, online)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Digital Academy 2020 – Basic and Advanced Python Coding Courses

- 12/2019 **Lectures and Exercise Classes (8 hours)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Academy 2019 – Advanced Python Coding Course
- 10/2019 **Lectures and Exercise Classes (8 hours)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Academy 2019 – Python Coding Course
- 01/2019 **Lectures and Exercise Classes (8 hours)**  
CEFRIEL S.CON.S.R.L., MILANO, ITALY  
Fastweb Academy 2019 – Android Coding Course

## LANGUAGE SKILLS

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- ITALIAN Native speaker
- ENGLISH Reading: excellent; Writing: excellent; Speaking: good. TOEFL iBT score: 110 (Oct 2014).