





MICHELE CHIARI

Curriculum Vitae

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EMPLOYMENT

- 11/2022 – PRESENT **PostDoc Researcher (Projektassistent)**
TU WIEN – VIENNA, AUSTRIA
WWTF Project ProbInG (ICT19-018)
- 11/2021 – 10/2022 **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.*, 18(3):11:1–11:49, 2022. doi:10.46298/lmcs-18(3:11)2022. 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*, 27(1-2):29–69, 2022. doi:10.1007/s10601-021-09322-9. 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

- [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, SHORT PAPERS AND POSTERS

- [13] Michele Chiari, Michele De Pascalis, and Matteo Pradella. Static analysis of infrastructure as code: a survey. In *1st Int. Workshop on Foundations of Infrastructure Specification and Testing, IEEE 19th Int. Conf. on Software Architecture Companion, ICSA Companion '22*, pages 218–225. IEEE, 2022. doi:10.1109/ICSA-C54293.2022.00049.
- [14] 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.
- [15] 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.
- [16] 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.
- [17] 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>.
- [18] 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

- RV 2023 – PC
- VeriProp@CAV 2023 Workshop – co-chair
- CAV 2023 – AEC
- ECOOP 2023 – AEC + ERC
- SAC-SVT 2023 – PC
- FastContinuum@ICPE 2023 Workshop – PC
- FIST@ICSA 2023 Workshop – PC
- OOPSLA 2022 – AEC + ERC
- FIST@ICSA 2022 Workshop – PC
- ECOOP 2022 – AEC + ERC, **Distinguished Artifact Reviewer Award**
- ICST 2021 Poster Track – PC
- OOPSLA 2021 – AEC

PC = Program Committee, AEC = Artifact Evaluation Committee, ERC = Extended Review Committee

PEER REVIEW

- TACAS 2023 conference (subreviewer)
- Science of Computer Programming (SCICO) – Software Track
- The Programming Journal, Volumes 7 and 8 – 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)

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

SUPERVISED STUDENTS

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

TEACHING EXPERIENCE (ACADEMIC)

09/2019 – 12/2021	Teaching Assistant (70 hours over 3 academic years, partially online) POLITECNICO DI MILANO, ITALY Classroom exercise for the course “Principles of Programming Languages” (Scheme, Haskell and Erlang Programming) Prof. Matteo Pradella.
09/2019 – 12/2021	Teaching Assistant (76 hours over 3 academic years, partially online) POLITECNICO DI MILANO, ITALY Classroom exercise for the course “Fondamenti di Informatica” (C Programming) Prof. Raffaella Mirandola.
05/2019 – 05/2021	Tutoring Activity (25 hours over 2 academic years) POLITECNICO DI MILANO, ITALY Development of the final project for the course “Algoritmi e Principi dell’Informatica”.
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.
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)

05/2022 **Lectures and Exercise Classes (112 hours over 3 years, partially online)**
 CEFRIEL S.CON.S.R.L., MILANO, ITALY
 Fastweb Digital Academy – basic and advanced Python Coding Course

21/12/2021 – 25/01/2022 **Lectures and Exercise Classes (16 hours)**
 ITS INCOM, BUSTO ARSIZIO, ITALY
 Big Data Analysis and Data Engineering – 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

ITALIAN Native speaker

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