Michele Chiari
Curriculum Vitae

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↗ https://michiari.github.io/

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-Württenberg, 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

- SAC-SVT 2023 – Program Committee

- 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

- TACAS 2023 conference (subreviewer)

- Science of Computer Programming (SCICO) – Software Track

- 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)

ESOCC 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. Raffaela 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.Cons.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.Cons.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).