

Maurice Laveaux

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Interests

My main interests are developing efficient algorithms for model checking large software systems. I am the maintainer of the [mCRL2](<https://github.com/mCRL2org/mCRL2>) toolset, which is the toolset developed in the Formal System Analysis research group written in C++. On the side I maintain the [merc](<https://github.com/MERCorg/merc>) toolset, to experiment with new model checking algorithms written in the Rust programming language.

Positions Held

- 2023–Present **Scientific Programmer**, *Eindhoven University of Technology*, Eindhoven.
Developing scientific software for the FSA group and maintaining the mCRL2 toolset.
- 2018–2023 **PhD in Computer Science**, *Eindhoven University of Technology*, Eindhoven.
Accelerated Verification and Verified Acceleration: developing many-core algorithms for model checking and providing formal verification of these algorithms.
- 2016 **Internship**, *Verum Software Tools BV*, Waalre, 3 Months.
Topic: Dezyne counter examples using monitor processes

Research Output

Publications

- 2026 M. Laveaux and T.A.C. Willemse. Deciding Impossible Futures. *Juggling Formal Methods and Security* 2026.
- 2026 J.J.M. Martens and M. Laveaux. Faster Signature Refinement for Branching Bisimilarity Minimization. *TACAS* 2026.
- 2025 A. Stramaglia, J.J.A. Keiren, M. Laveaux, T.A.C. Willemse. Efficient Evidence Generation for Modal μ -Calculus Model Checking. *TACAS* 2025.
- 2023 M. Laveaux and T.A.C. Willemse. Decomposing monolithic processes in a process algebra with multi-actions. *JLAMP* 2024
- 2022 J.F. Groote, K.H.J. Jilissen, M. Laveaux, P.H.M. van Spaendonck, Tim A. C. Willemse. Using the Parallel ATerm Library for Parallel Model Checking and State Space Generation. *A Journey from Process Algebra via Timed Automata to Model Learning* 2022.
- 2022 Mark Bouwman, Maurice Laveaux, Bas Luttik, Tim A. C. Willemse. Decompositional Branching Bisimulation Minimisation of Monolithic Processes. *FACS* 2022.
- 2022 A Thread-Safe Term Library - (with a New Fast Mutual Exclusion Protocol). *ISoLA* 2022
- 2022 M. Laveaux, W. Wesselink, T.A.C. Willemse. On-The-Fly Solving for Symbolic Parity Games. *TACAS* 2022.

- 2021 R. Erkens and M. Laveaux. Adaptive Non-Linear Pattern Matching Automata. LMCS 2021.
- 2021 M. Laveaux, J.F. Groote and T.A.C. Willemse. Correct and Efficient Antichain Algorithms for Refinement Checking. LMCS 2021.
- 2020 R. Erkens and M. Laveaux. Adaptive Non-Linear Pattern Matching Automata. FSCD 2020.
- 2019 M. Laveaux, J.F. Groote and T.A.C. Willemse. Correct and Efficient Antichain Algorithms for Refinement Checking. FORTE 2019.
- 2019 O. Bunte, J.F. Groote, J.J.A. Keiren, M. Laveaux, T. Neele, E.P. de Vink, J.W. Wesselink, A. Wijs, T.A.C. Willemse. The mCRL2 Toolset for Analysing Concurrent Systems. TACAS 2019.

Artifacts

- 2026 M. Laveaux and J.M. Martens. Artifact for Faster Signature Refinement for Branching Bisimilarity Minimization. Zenodo 2026.
- 2025 Jan Friso Groote, Jeroen Keiren, Maurice Laveaux, Bas Luttik, Thomas Neele, Myrthe S. C. Spronck, Anna Stramaglia, Matthias Volk, Tim A. C. Willems. Artifact for Advancing mCRL2: symbolic and quantitative model checking. Zenodo 2025
- 2022 M. Laveaux and T.A.C. Willemse. Decomposing Monolithic Processes using the mCRL2 toolset. Zenodo 2022.
- 2022 M. Laveaux and T.A.C. Willemse. On-The-Fly Solving for Symbolic Parity Games using the mCRL2 toolset. Zenodo 2022.

Reports

- 2017 M. Laveaux and T.A.C. Willemse. Implementing Priority Promotion for Parity Games.

Other Activities

- 2026 QEST+FORMATS 2026 Artefact Evaluation Committee.
- 2026 FORTE 2026 Artefact Evaluation Committee.
- 2025 QEST+FORMATS 2025 Artefact Evaluation Committee.
- 2024 iFM 2024 Artefact Evaluation Committee.
- 2023 iFM 2023 Artefact Evaluation Committee.
- 2022 TACAS 2022 Artefact Evaluation Committee.
- 2021 TACAS 2021 Artefact Evaluation Committee.

Education

- 2015–2018 **Master Computer Science and Engineering**, *Eindhoven University of Technology*, Eindhoven.
 - Thesis: Abstracting real-valued parameters in parameterised boolean equation systems
 - Supervisor: dr. ir. T.A.C. Willemse
 - Honors: cum laude
- 2012–2015 **Bachelor Software Science**, *Eindhoven University of Technology*, Eindhoven.
 - Software Engineering Project
- 2006–2012 **VWO**, *Graaf Huyn College*, Geleen.

1998–2006 **Primary School**, *De Duizendpoot*, Geleen.