dr. Tom Lauwaerts

tom.lauwaerts@gmail.com · (+32) 468 20 27 42 ·

Dutch Native · **English** High professional proficiency · **French** Elementary · **Chinese** Novice

Work experience

Post-doctoral Researcher
Vrije Universiteit Brussel · ***2025 - present***

Research into debugging and testing tools with a strong formal foundation.

PhD Researcher: Programming Languages
Ghent University · ***2021 - 2025***

Research into debugging and testing tools with a strong formal foundation.

Teaching Assistant
Ghent University · ***2021 - 2025***

Supervising the tutorials and projects, and assisting oral exams for the courses: *Fundamenten van programmeertalen*, and *Logisch programmeren*.
Coaching master students, and jury member for master dissertations.

Embedded Software Developer (Internship)
Creative Therapy (startup) · ***July - August 2020***

Researching WebUSB technology and developing a USB gadget driver in Linux for WebUSB communication between the online platform and the hardware.

Education

PhD in Computer Science · *2021 - 2025*
Ghent University, TOPL lab

BSc. and MSc. in Computer Science · *2016 - 2021*
Ghent University, faculty of sciences

Highlighted research output

Multiverse debugging on microcontrollers
2025-10 | Conference paper (OOPSLA'25)

Event-Based Out-of-Place Debugging
2022-09-14 | Conference paper (MPLR'22)

Academic services

DEBT workshop co-organizer · *2025*
Co-organizer of DEBT'25 with Burcu Kulahcioglu Ozkan (TU Delft).

Programming artifact evaluation committee member · *2024 - 2026*
AEC member for the Programming conference and journal (volumes 9 and 10).

Volunteer work

Science communication and outreach · *2021 - present*
Assisting with SID-in, Alumniday UGent, Unimath, and Com Sci Olympiad.

Open-source software contributor · *2021 - present*
WARDuino · **latch**

Honors

ISSTA'23 Research competition: 3rd place · *2023*
International ACM Research competition at ECOOP/ISSTA 2023 3rd place medal.

Scientific publications

MIO: Multiverse Debugging in the Face of Input/Output

*2025-10 | **Tom Lauwaerts**, Maarten Steevens, Christophe Scholliers | Proceedings of the ACM on Programming Languages (PACMPL)*

I will present this work at the main track of OOPSLA 2025 conference.

Foundations for Constrained Debugging Techniques

*2025-08 | **Tom Lauwaerts** | PhD dissertation (Universiteit Gent)*

Latch: Enabling large-scale automated testing on constrained systems

*2024-12 | **Tom Lauwaerts**, Stefan Marr, Christophe Scholliers | Science of Computer Programming Journal*

I presented this work during a poster session at the ISSTA'23 conference.

Concolic Multiverse Debugging

*2024-09-13 | Maarten Steevens, **Tom Lauwaerts**, Christophe Scholliers | Short paper (DEBT'24)*

An early version of this work was presented by myself at the final of the ISSTA'23 Research competition.

WARDuino: An embedded WebAssembly virtual machine

*2024-06 | **Tom Lauwaerts**, Robbert Gurdeep Singh, Christophe Scholliers | Journal of Computer Languages*

Presented at the International Conference on the Art, Science, and Engineering of Programming 2022, during a poster session and a dedicated demonstration.

Out-of-Place Debugging on Constraint Devices with the EDWARD Debugger (Demo)

*2023-07-17 | **Tom Lauwaerts**, Carlos Rojas Castillo, Elisa Gonzalez Boix, Christophe Scholliers | Short paper (DEBT'23)*

Demo presentation at the first Workshop on Future Debugging Techniques (DEBT'23).

Demo: Debugging Constraint Devices with EDWARD

*2023-06-18 | **Tom Lauwaerts**, Carlos Rojas Castillo, Elisa Gonzalez Boix, Christophe Scholliers | Short paper (MobiSys'23)*

Demo and poster presentation at the 21st ACM International Conference on Mobile Systems, Applications, and Services (MobiSys'23).

Event-Based Out-of-Place Debugging

*2022-09-14 | **Tom Lauwaerts**, Carlos Rojas Castillo, Robbert Gurdeep Singh, Matteo Marra, Christophe Scholliers, Elisa Gonzalez Boix | Conference paper (MPLR'22)*

I presented this work at the main track of the 19th International Conference on Managed Programming Languages & Runtimes (MPLR'22).