

Willem Vanhulle



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1. Experience

DevLab (Professional training)
Course instructor

Ghent, Belgium
June. 2025 - current

- **Systems programming workshops:** Giving talks about a variety of systems programming topics and inviting guest speakers (see Section 5). Skills: *teaching, embedded, electronics (Rust, Lean, Nushell, Typst¹)* [slides](#)
- **Intensive Rust evening course:** Deliver 7-week intensive Rust course about safe systems programming for professional Python, C and C++ developers. Skills: *motivational teaching (Nix, Rust, Typst, C, C++)* [source](#) [live](#)

OTIV (Railway automation)
Software engineer

Ghent, Belgium
Apr. 2024 - June 2025

- **Distributed embedded systems:** Hybrid remote control system for freight trains of large railway company. Implement real-time connectivity monitoring using video and telemetry. Skills: *asynchronous, media streaming, zero-copy signal processing (Rust)*
- **Developer tooling & build systems:** Editor integrations. Reduce CI/CD pipelines runtime by 95%. Skills: *Git, DevOps (Rust, Nix, Bash, Python)*
- **Learning and development:** Professional training for internal software and embedded teams. (*Rust*)
- **Native desktop user interfaces:** Architect multi-monitor native Rust desktop application. Design and maintain front-end components for displaying live train data. Skills: *safety standards, reactive programming, UI/UX (Rust, HTML)*

Inbiose (Biotechnology & fermentation)
Software engineer

Ghent, Belgium
June 2021 - April 2024

- **Collaborative scientific front-end:** Collaborative spreadsheet web interface and database. Datagrid caching and conflict resolution on restore. automated data parsing from scientific instruments. Skills: *Svelte, D3.js (TypeScript)*
- **Industrial robotic control:** Control software for in-house fermentation robot. Read out raw signals from electronics and process data from optical sensors. Implement safety mechanisms for biochemical fermentation experiments. Skills: *robotics, real-time systems, dashboards, time-series, automation (Python, Rust, C++, Visual Basic)*

High-school and university (Education)
Part-time mathematics lecturer & tutor

Brussels & Leuven, Belgium
Nov. 2014 - Jan. 2021

- **Part-time teacher:** Teach algebra to refugees and adults with learning difficulties about algebra. Create engaging lessons and exercises. (*Python, LaTeX*)
- **Freelance tutor:** Tutor high-school and university students in analysis, statistics, linear algebra.

¹Use this [Typst resume](#) as a template for your own.

2. Public Projects

Nu-Lint: A helpful linter for NuShell with more than 80 lint rules and automatic fixes. Skills: *parsing, static analysis, type inference (Nu)* [source](#)

Clone-Stream: A functional approach to data stream processing with a type of async iterators. Conference talk at EuroRust in Paris. Skills: *state machines, asynchronous programming, unsafe traits (Rust)* [docs](#) [slides](#) [live](#)

ENNReal-Arith: This project should help Lean developers formalize new facts of probability theory. Skills: *theorem proving, formal verification (Lean)* [source](#)

Nix User Modules: Set of Nix modules that provide user-level declarative services for Linux operating systems. Skills: *network security, SystemD, DevOps, Linux, NixOS (Nix)* [source](#)

Ferrous-Owl: Editor plugin for new Rust users to learn about move semantics and the ownership system interactively. Skills: *teaching, static analysis, editor plugins (Rust, TypeScript)* [source](#)

3. Spoken languages

Native: English, Dutch **Intermediate:** French, German

4. Education

KU Leuven (University)

Leuven, Belgium

Preparation program and Master of Science in Theoretical Physics (terminated early) Sep. 2019 - April 2021

- **Courses:** Statistical mechanics in Julia, data mining and neural networks in Python, thermodynamics, analytical mechanics, electrodynamics and quantum mechanics.
- **Volunteering:** Guide for international students.

KU Leuven (University)

Leuven, Belgium

Master Pure Mathematics

Sep. 2017 - June 2019

Project: Models of univalence in cubical sets ([summary](#)).

- **Courses:** Cubical type theory in Agda, category theory, algebra, encryption, discrete mathematics, algebraic topology, differential geometry, programming language semantics and operator algebras.
- **Volunteering:** Coordinator student association.

VUB (University)

Brussels, Belgium

Bachelor of Science in Mathematics, Minor Computer Science

Sep. 2013 - Aug. 2017

Project: Functional analysis and machine learning

- **Courses:** Functional programming in Scheme, philosophy of mathematics in Coq, compiler construction and Intel 8086 assembly, database design, algorithms and data-structures in Lisp, mathematical logic, analysis, algebra, information theory, encryption, numerical methods, differential equations, statistics in R and linear algebra.
- **Volunteering:** Managing computer rooms.

5. Hobbies

Founder of SysGhent: Facilitate professional and cross-cultural networking in Ghent. [live](#)

Sports: Hiking, badminton, dancing