Willem Vanhulle

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1. Experience

DevLab (Professional training)   Ghent, Belgium
Course instructor   *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, Typst[1]) 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)   Ghent, Belgium
Software engineer   *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)
- **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)   Ghent, Belgium
Software engineer   *June 2021 - April 2024*

- **Collaborative scientific front-end:** Collaborative spreadsheet web interface and database. Datagrid caching and conflict resolution on restore. Skills: *NodeJS, WebSocket, JSON-RPC, CRDTs, data collection* (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)

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 slides

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) source docs slides live

ENNReal-Arith: Help mathematicians and computer scientists formalize probability theory. Skills: *theorem proving, formal verification* (Lean) source

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

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:** Category theory, algebra, cryptography, discrete mathematics, algebraic topology, differential geometry 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, computer systems in Intel 8086 assembly, database design, algorithms and data-structures in Scheme, algebra, encoding and decoding, cryptography, 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