Marcin Wojnarowski

Bachelor of Science in Engineering

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Personal Profile

Love programming languages, computer science theory, and open source. Keen and quick to learn new things. Open to new technologies. I spend my free time studying and exploring ideas that get me out of my comfort zone. Professional industrial experience in software engineering while keeping in touch with the academic world.

Education

EPFL *Lausanne, Switzerland*

Computer Science Theory, Masters *Sep 2023 - Feb 2026*

- Studying subjects around programming languages and formal methods
- **Thesis**: extending the Rocq formalization of the PikeVM with verified optimizations and new regex features
- **Project**: implementing linear time look-behinds in the Rust regex library
- **Project**: embedding dependant types in a set theoretic theorem prover
- TAing
  - **Software Construction** – in-person coordinator of TAs, 400 student course
  - **Advanced Compiler Construction** – developing grading solutions and grading itself
  - **Computer Language Processing** – exercise/lab testing, student support
  - **Concurrent Computing** – exercises and project session
  - **Distributed Algorithms** – project session
- Help with deployment of a formal autograding software

Warsaw University of Technology, Faculty of Mathematics and Information Science *Warsaw, Poland*

Computer Science, BSc in Engineering *Oct 2019 - Feb 2023*

- Graduated with honors, top of my class
- Received scholarships for academic results
- **Thesis**: *Project of Application for Piano Music Generation by Artificial Intelligence Algorithms* supervised by Jerzy Balicki DSc habil., Associate Professor
- Taught exclusively in English

Bednarska Szkoła Realna *Warsaw, Poland*

High School *2015 - 2019*

- Conducted extra-curricular lessons about machine learning
- Graduated top of the class in my specialization

Work Experience

LeanCode *Warsaw, Poland*

Software Engineer *Nov 2020 - Sep 2024*

- Leading, designing, and developing a contracts language for type-safe communication between different platforms.
- Managing mobile development teams.
- Working on many projects in early and late development stages.
- Maintaining many open source tools.
- Working under an agile Scrum framework. Close contact with clients.
- Give talks at conferences and meetups.
- **Technical Skills:** Dart, Rust, C#. CI/CD, mobile, backend.

Zespół Szkół "Bednarska" *Warsaw, Poland*

Software Engineer *Jan - May 2020*

- Created a digital school diary system as a modern offline-first PWA. Used by the school complex *Zespół Szkół "Bednarska"*. Allows students to receive school announcements, news, and messages much faster. Increased the teacher-student contact.
- **Technical Skills:** Typescript, React. Web dev, REST. Linux.

SWAP *Warsaw, Poland*

Full-Stack Software Engineer *Jul - Dec 2019*

- Created a new social media app for a new startup. Allows users to connect and share links with use of QR codes.
- **Technical Skills:** Typescript, React, MongoDB, NodeJS. Web dev, backend, databases. Linux.

IBM *Warsaw, Poland*

Intern *Jul - Sep 2018*

- Research & Development of s micro-frontend solution.
- Gathered knowledge and insights were propagated in IBM.
- **Technical Skills:** Typescript, React, NodeJS. Web dev, backend.

Relevant university projects

A small subset of university projects.

Linear-time look-behinds in Rust regex
EPFL
Implementation of linear-time look-behinds in the official Rust regex library. This project was wholly completed including design, implementation, testing, documentation, and benchmarking. This is one of the first regex implementations supporting look-behinds in a linear engine. Blog post with relevant links: `https://systemf.epfl.ch/blog/rust-regex-lookbehinds/`.

Formally verified language
EPFL
Specification and implementation of a toy programming language for which we can formally reason about its properties. Given a statically checked program we prove that its execution is free of runtime problems, such as accessing invalid memory. Implemented in Lean and Stainless (SMT-based). Project page: `https://github.com/shilangyu/formal-lang`.

Sensor coverage problem
Warsaw University of Technology
By means of Topological Data Analysis the question of whether a set of sensors under some assumptions cover a domain is answered. This was an implementation of the paper *Coordinate-free coverage in sensor networks with controlled boundaries via homology* by *V. De Silva* and *R. Ghrist* Project page: `https://github.com/shilangyu/sensors-coverage`.

Skills

Programming	Rust, Lean, Rocq, C, C++, C#, Julia, Golang, Python, Typescript, Dart.
Tools	Linux, LaTeX, Git.
Stack	Web, Mobile, Systems.
Soft Skills	Time management, Leader, Team player, Quick learner, Problem solving, Good communication, Teaching.

Achievements

2023	**Honors,** Bachelor graduation honors	*Poland*
2022	**Scholarship,** Bachelor studies for academic results	*Poland*
2021	**Grant,** NLnet fund of 10 000€ for development of a decentralized platform `https://nlnet.nl/project/Lemmur`	*Poland*

Publications

Formal Autograding in a Classroom (Experience Report)
Dragana Milovancevic, Mario Bucev, Marcin Wojnarowski, Samuel Chassot, Viktor Kuncak
(2024). URL: `http://infoscience.epfl.ch/record/309386`

Interests

Programming languages	I love learning new programming languages and exploring their design decisions. I keep up with this space and I am studying accompanying fields (type theory, compilers, software foundations).
Open source	I believe open source is a crucial part of the modern world. I actively contribute to other projects and open source my own.
Formal subjects	I am a big fan of theoretical computer science. My main areas of interest are formal verification, interactive theorem provers, logic, and computational complexity.
Skiing/Sailing	Despite my love for things that require sitting in front of a computer, there is nothing I enjoy more in this world than skiing.

Languages

English	Fluent
Polish	Native
French	Conversational

References available upon request.