Nicolas LAURENT

Software Engineer, PhD

Contact

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Remote: ✓ / Relocate: ✓	web version: norswap.com/resume

Experience & Education

R&D Protocol Engineer (Principal)
2021 - Present

Optimism, Remote

Optimistim is a rollup blockchain meant to scale the mainnet Ethereum blockchain. At the time of writing, Optimism secures more than 400,000,000$ in value locked on Ethereum, and more when accounting for native tokens. As a member of the protocol team, my task is to help conceive, specify and prototype the next version of the protocol, whose goal is to reduce complexity, increase security, and reduce transaction costs for users. The work is carried out in public at https://github.com/ethereum-optimism/optimistic-specs

Core Developer Apprenticeship
June-October 2021

Ethereum Foundation, Remote

I was selected as one of about ten grant recipients for the core developer apprenticeship, in a pool of more than 400 applicants.

As part of the apprenticeship, I went from barely knowing what a blockchain was to understanding Ethereum in depth, wrote a state-of-the-art reviews on blockchain state expiry and a research proposal on miner extracted value. I also wrote my own implementation of a large chunk of Ethereum's execution layer for education purposes.

All the work I did during my apprenticeship is available at norswap.com/cdap

Invited Professor
2021 - Present

Université Catholique de Louvain, Belgium

I am teaching the *"Languages & Translators"* compiler course to a class of about 100 computer science & master students. Students had to implement their own programming language for the course's project.

The class lectures & materials are freely available at norswap.com/compilers

R&D Compiler Engineer (Senior)

2019 - 2021

Oracle Labs, Remote

I am working on the GraalVM project, and in particular the implementation of TruffleRuby.

My work has contributed to improve TruffleRuby's peak performance (it is the fastest Ruby implementation on a wide range of benchmarks) and reduce its warmup time. I have also collaborated closely with our customers at Shopify.

Much of my work at Oracle is publicly visible at github.com/oracle/truffleruby/commits?author=norswap

PhD in Computer Science

2014 - 2019

Université Catholique de Louvain, Belgium

My thesis, *"Principled Stateful Parsing"* explores how adding custom code to parser specifications enables overcoming many practical challenges in the field, and how to mitigate the downsides.

Teaching assistant in the cloud computing, agile programming, and programming paradigms classes.

iOS Developer

2013 - 2014

Famest, Louvain-La-Neuve, Belgium

Famest was a fashion-centric social network that let users showcase their outfits and connect with brands. I rewrote the hastily-writen Famest iPhone app (which would routinely crash after any quick succession of user inputs) in order to make it realiable and maintainable.

Bachelor & Master in Computer Science

2008 - 2013

Université Catholique de Louvain, Belgium
Grade: Magna Cum Laude

Double major in networking/security and software engineering.

Teaching assistant in the functional programming and computer systems classes.

Technologies

If you absolutely need to see a keyword in this section, we might not be a good fit. Having at this point implemented multiple languages and frameworks, I like to think I'm able to learn anything that is required in a reasonable amount of time.

That being said, I have experience in Java, C, C++, Objective-C, Kotlin, Ruby, Javascript, Python, Prolog, Lua, Bash, SQL, Git, Make, CMake, Maven, Gradle, Solidity, and more.

Selected Publications

Principled Procedural Parsing
Nicolas Laurent
PhD Thesis (2019); Louvain-La-Neuve, Belgium

Taming Context-Sensitive Languages with Principled Stateful Parsing
Nicolas Laurent and Kim Mens
ACM SIGPLAN Conference on Software Language Engineering (SLE) 2016; Amsterdam, The Netherlands

Parsing Expression Grammars Made Practical
Nicolas Laurent and Kim Mens
ACM SIGPLAN Conference on Software Language Engineering (SLE) 2015; Pittsburg, USA

SDLoad: An Extensible Framework for SDN Workload Generation.
Nicolas Laurent, Stefano Vissichio and Marco Canini
ACM SIGCOMM Workshop on Hot Topics in Software Defined Networking (HotSDN) 2014; Chicago, USA

A PEG-Based Macro System for Java
Nicolas Laurent
Master Thesis (2013); Louvain-La-Neuve, Belgium

A full list of publications, with download links, is available at norswap.com/publications

I also blog at norswap.com/sitemap on programming, finance, exercise, and pop culture.

Spoken Languages

French   Native Speaker

English   Advanced Professional Proficiency (ILR-4+)

Dutch   Limited Working Proficiency (ILR-2)