

Nicolas "Norswap" LAURENT

Software Engineer & Researcher, PhD

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Remote: ✓ / Relocate: ?

web version: norswap.com/resume

Experience & Education

Staff R&D Protocol Engineer (Blockchain)

November 2021 - December 2022

Optimism, Remote

I mostly worked on the design & architecture of Bedrock, from inception to feature-completeness. Bedrock is the new release of the Optimism L2 (rollup) blockchain, which currently secures upwards of 1B\$ in assets. Bedrock is also the basis for the OP Stack, an open-source modular rollup architecture available to all.

I was involved in almost every design discussion, wrote the major part of the [specification](#), as well as the Bedrock whitepaper (to be released soon).

Additionally, I did the initial discovery & cleanup work on [Cannon](#), as well as set a tentative roadmap. Cannon is a fault proof system (the system that secures optimistic rollups like Optimism) originally devised by the legendary Georges Hotz. Cannon will be one of the main focus on Optimism going into 2023.

I also dabbled in other functions. On the side of business development, I was instrumental in bringing Velodrome Finance to Optimism, a distributed exchange (DEX) onto Optimism, where it now has 75M\$ in total locked value, and just shy of 3B\$ in cumulative transaction volume. I also helped handle the relationships with our "protocol partners", including organizations such as Flashbots, Shutter Network, Cartesi, ...

I delivered many conference talks, including at top venues like ETH[CC] and Devcon, on topics such as Bedrock, Cannon, as well as ideas regarding future direction like MEV-handling and cross-rollup atomic transactions.

Invited Professor

September 2020 - August 2022

Université Catholique de Louvain, Belgium

I taught the "*Languages & Translators*" compiler course to a class of about 100 computer science & engineering 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

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

Senior R&D Engineer (Compilers)

October 2019 - November 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

February 2014 - October 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

September 2013 - February 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-written Famest iPhone app (which would routinely crash after any quick succession of user inputs) in order to make it reliable and maintainable.

Bachelor & Master in Computer Science

September 2008 - August 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, Go, 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, blockchains, finance, exercise, and pop culture.

Spoken Languages

French Native Speaker

English Advanced Professional Proficiency (ILR-4+)

Dutch Limited Working Proficiency (ILR-2)