STEPHEN NICHOLAS SWATMAN

PERSONAL DETAILS

born	Amsterdam, Netherlands, March 1st 1996
email	stephen@v25.nl
website	https://v25.nl/
github	https://github.com/stephenswat
phone	(+31) (06) 26 24 87 08
residence	Saint-Genis-Pouilly, France

PROFILE

Computer scientist and programmer with an interest in high-performance computing and a passion for engaging and instructing others. Enjoy working on the edge between computer science and high energy physics. Committed to sharing knowledge and ensuring people have free and open access to information. Advocate of intellectual freedom, as well as free software and data.

EDUCATION

2020 – Current — University of Amsterdam

PhD

Doctoral student aligned to the University of Amsterdam, working at the European Organization for Nuclear Research (CERN). Developing high-performance heterogeneous algorithms for track reconstruction problems in high-energy physics experiments. Working towards a fully heterogeneous algorithm chain to convert raw data to physics. Also interested in education, training, and making HPC more accessible to domain scientists.

2016 – 2019 — Vrije Universiteit Amsterdam

Master

Master in computer science specialised in big data engineering. Joint degree with the University of Amsterdam. Conducted research on high-performance computing at the National Institute for Subatomic Physics (Nikhef), working on the CERN ATLAS experiment software in the group of dr. Wouter Verkerke (Nikhef), under the supervision of dr. Ana Varbanescu (UvA) and dr. Peter Kluit (Nikhef). Graduated with a grade point average of 8.5.

2013 – 2016 — University of Amsterdam

Bachelor

Bachelor in computer science with a minor in the field of intelligence studies and economy. Conducted research on combinatorial timetable optimisation problems under the supervision of dr. Leen Torenvliet (UvA). Graduated with honours (*cum laude*), with a grade point average of 8.6.

2007 – 2013 — Cygnus Gymnasium

High School

Gymnasium education with a double profile in natural sciences, health, and technology, with Latin as ancient language as well as German and computer science.

WORKING EXPERIENCE

2020 – 2020 — Software Developer, CERN

Improve the computational performance of software for the ATLAS high energy physics experiment at CERN, developing high performance particle track fitting software to meet the requirements of planned high luminosity Large Hadron Collider upgrades. Work on the safety and performance of very large code bases in multi-threaded environments.

2020 – 2020 Researcher, University of Amsterdam

Write software for *TeamPlay*, a Horizons 2020 project aiming to simplify the development of real-time systems based on non-functional properties. Develop the *methane* metaprogramming toolchain which generates efficient cross-platform high-level code for assembling real-time applications from components arranged in data flow graphs.

2014 – 2019 TA and Tutor, University of Amsterdam

Assisted students in computer science courses at both a bachelor and master level. Taught correct and current programming styles and methodologies, as well as theoretical aspects in both a personal and a group setting. Was a personal coach and tutor of a small to medium-sized group of first and second year bachelor students. Taught students academical competencies such as writing, working in teams and technical skills such as LaTeX.

2014 – 2014 Programmer, Sponiza IT

Developed extensions for the OpenCart webshop system in the context of a large, non-conventional web store project. Programmed in the MVC model and processed monetary transactions and data, including automatic generation of invoices both internally and using external invoice services.

Areas of interest

High performance computing Scientific computing
Programming languages Compiler design Functional programming
Theoretical foundations Category theory Code quality assurance

Competencies

Languages C, C++, Python, Haskell, Rust, Bash, Java, SQL, LaTeX, Markdown, Piet

HPC CUDA, SYCL

System operation Linux, nginx, PostgreSQL, supervisord

Tooling git, GNU make, CMake, gdb, Intel VTune, perf

Frameworks Django

Other

Misc experience 2011 · Book depository Cygnus Gymnasium · Administration and distribution of study books as well as development of a system of automation using barcode scanners to simplify the process.

Certifications LFS101x · Introduction to Linux

SIG · Building Maintainable Software

Memberships 2014 – Current · Linux Foundation

2016 – Current · Free Software Foundation

2016 – Current · Free Software Foundation Europe

Driving licenses November 2015 · Dutch *Rijbewijs* B (cars) and AM (scooters)

Languages

Dutch	·	Native
English	·	Near-native
German	·	Basic
Swedish	·	Basic
French	·	Basic

Talks

2017 · Invited git tutorial for students at UvA

June 2019 · Short talk at CompSys 2019

November 2021 · Oral presentation at ACAT 2021

Service

2021 · Remote student volunteer at Supercomputing 21

May 3, 2022