Gaëtan Schwartz

DevOps · Full-stack Developer

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"Humility is the beginning of true intelligence." — Jean Calvin

Education

EPFL (Swiss Federal Institute of Technology in Lausanne)   *Lausanne, Switzerland*
B.S. in Computer Science and Engineering   *Sept. 2018 - 2023*
- Diverse curriculum including courses in computer science, mathematics, physics, electrical engineering, and social sciences.
- Gap year in 2020-2021 to visit family and take care of personal matters.

Skills

Programming	Zig, Rust, C/C++, Dart, Scala, Java, Javascript/Typescript, Python, *nix shell scripting, SQL, VHDL, MIPS ASM
Systems Programming	Computer architecture (cpu, gpu, memory), MIPS ASM, VHDL, Compiler architecture
Networking	IP Protocol, TCP/UDP, DNS, NAT, DMZ, VPN, HTTP(S) protocol
Database Systems	SQL, PostgresSQL, SQLite: architecture, performance optimization
Infrastructure - DevOps	CI/CD, git, Github, sccache, *nix systems (scripting, administration, security)
Containerization - DevOps	Docker (compose, build), Kubernetes, podman
Collaboration - DevOps	git, Github, SCRUM, Github Projects, Trello, Slack, IRC, AGILE
Languages	French (native), English (fluent), German (B2 CEFR), Chinese (active learning)

Experience

Bigmagie Sàrl   *Lausanne, Switzerland |*
   Tignieu-Jameyzieu, France
Mobile Software Developer   *Nov. 2018 - PRESENT*
- Developed a cross-platform mobile app that connects to a BLE device as a magic trick.
- Reverse engineered a BLE protocol, decrypting closed-source protocols
- Uploaded the application on the designated stores and provided Tier 0 support to clients.

   Stack: Flutter, Dart, BLE, git, AWS, Firebase, Kotlin, Android Studio, Gradle, Slack, Google Play Console, nodejs

TeamClean Sàrl   *Lausanne, Switzerland*
Mobile Software Developer   *Nov. 2022 - Dec. 2023*
- Designed, architected and developed a cross-platform application (iOS, Android) enabling a company to manage its employees and their mission.
- Implemented a real-time chat, PDF scanning, Push notifications

   Stack: Flutter, Dart, git, Kotlin, Swift, Xcode, Android Studio, Firebase, Slack, Google Play Console, Apple Developer Console, Bitrise CI, ssh, nodejs, openssl, Insomnia

Academic Projects

Pen-gripping posture analysis of children using an iPad Pro
Lausanne, Switzerland

BACHELOR'S SEMESTER PROJECT *Sept. 2023 - Jan. 2024*

- Developed an iOS application to be used on an iPad to analyze children's pen-gripping posture using the iPad's camera and Apple Pencil's data.
- Investigated different machine learning frameworks and techniques as well as application performance to accommodate to older iPads.

Stack: Swift, iOS, iPadOS, Apple Pencil, CoreML, MediaPipe, CocoaPods, git, Xcode, Python, TensorFlow, Jupyter Notebook, OpenCV, NumPy, Matplotlib, scikit-learn, pandas, LaTeX, git, Slack, Apple Developer Console

Analysis of League of Legends gameplay through Twitch to infer network statistics
Lausanne, Switzerland

BACHELOR'S SEMESTER PROJECT *Sep. 2022 - Jan. 2023*

- Developed a fully fledged pipeline to analyze League of Legends gameplay and infer network statistics out of it.

Stack: Python, Twitch API, Riot Games API, OpenCV, NumPy, Matplotlib, scikit-learn, pandas, git, Slack, Jupyter Notebook, Blender, League of Legends, nmap, Wireshark, VLC, ffmpeg

Honors & Awards

DOMESTIC

| 2019 | **1st Place**, La Vaudoise Hackathon | *Lausanne, Switzerland* |

Extracurricular Projects

Swift Travel (37 stars)
Geneva, Switzerland

OPEN-SOURCE PUBLIC TRANSPORT APPLICATION *Mar. 2019 - PRESENT*

- Development of a cross-platform application allowing to navigate Switzerland with SBB CFF FFS.
- Application with intent of providing an adaptable platform to add support for other countries / services.
- Open-source at `https://github.com/gaetschwartz/swift_travel`

Stack: Flutter, Dart, git, SBB CFF FFS API, Firebase, Google Play Console, Apple Developer Console, Bitrise CI, ssh, nodejs, openssl, Insomnia, Github Actions, iPhone 13 Pro, iPad 6th, OnePlus 6, XCode, Android Studio

Hezì (饸子)
Geneva, Switzerland

OPEN-SOURCE ARCHIVE UTILITY *May. 2023 - PRESENT*

- Development of an archiving utility in Rust supporting the majority of archive formats.
- Open-source at `https://github.com/gaetschwartz/hezi`

Stack: Rust, git, zstd, lzma, bzip2, tar, zip, 7z, Nushell, Github Actions, ssh, openssl, Insomnia, Visual Studio Code

Gaetans minimal math lang
Geneva, Switzerland

PET MATH / PROGRAMMING LANGUAGE *May. 2023 - PRESENT*

- Implemented a lexer, parser, interpreter and a REPL in Zig.
- Added support for basic math operations, variables, types, implicit type conversion, functions, constant unrolling, and more.
- Developed a website to try the language at `https://gaetans-math-lang.vercel.app/` running the interpreter in WebAssembly.

Stack: Zig, Javascript, WebAssembly, git, Github Actions, Vercel, ssh, openssl, Insomnia, Visual Studio Code, make, cmake, hyperfine, docker, qemu

Twitch Stickers
Geneva, Switzerland

MOBILE APPLICATION TO CREATE WHATSAPP STICKERS *Jan. 2024 - PRESENT*

- Mobile application to create Whatsapp Stickers from Stickers from 7tv.app and betterttv.
- Uses custom c-bindings to link to the libwebp library and convert the stickers to the webp format.
- Closed-source for now

Stack: Dart, Flutter, git, Github Actions, Bitrise CI, ssh, openssl, Insomnia, Visual Studio Code, libwebp, homebrew, make, cmake, libexif, imagemagick

Jiayou   *Geneva, Switzerland*

May. 2024 - PRESENT

- Development of a server with basic JWT authentication to store user data.
- Design and developement of the server's REST API and ingestion of data from the user.
- Development of a mobile application to interact with the server and display the data as well as recommendations to the user using an LLM model.
- Closed-source for now

Stack: Dart, Docker (compose, build), Flutter, git, ssh, openssl, Insomnia, Visual Studio Code, Beekeeper, ollama, homebrew, postgreSQL, Redis

My Home   *Geneva, Switzerland*

HOME SETUP AUTOMATION   *May. 2000 - PRESENT*

- Home setup automation using one Raspberry Pi 5, one Raspberry Pi 3B, one Synology NAS DS118.
- Running a complex setup of services running on the Raspberry Pi 5 using docker:
    - Pi Hole
    - Sonarr
    - Jellyfin
    - Jackett
    - qBitorrent
    - Immich
    - Custom monitoring service to check the Raspberry Pi's health (temperature, disk usage, etc.) using Gunicorn, Nginx, Django to serve the data as a REST API.
- Synology NAS DS118 serving as a backup server for different devices in the house.
- Remote access to the services using a Tailscale server running on the Raspberry Pi 3B.
- iOS homescreen widgets to view the status of the services.

Stack: Docker (compose, build), Kubernetes, Raspberry Pi 5, Raspberry Pi 3B, Synology NAS DS118, Tailscale, iOS, Swift, Python, Django, Gunicorn, Nginx, Pi Hole, Sonarr, Jellyfin, Jackett, qBitorrent, Immich, git, Github Actions, ssh, openssl, Insomnia, Visual Studio Code, apt, homebrew, neovim