

# Morales Mikael

SOFTWARE ENGINEER

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## Education

### Swiss Federal Institute of Technology (EPFL)

Lausanne, Switzerland

MASTER'S DEGREE IN COMPUTER SCIENCE. SPECIALIZATION: SOFTWARE SYSTEMS. GPA: 5.55/6.0

2017 - 2020

Relevant courses: Advanced compiler construction, Big data, Foundations of software, Machine learning.

### Swiss Federal Institute of Technology (EPFL)

Lausanne, Switzerland

BACHELOR'S DEGREE IN COMPUTER SCIENCE. GPA: 5.0/6.0

2013 - 2017

Relevant courses: Data structures, Algorithms, Database Systems, Operating Systems, Software Engineering, Compilers

## Skills

### Proficient

JAVA, SCALA, KOTLIN, SQL, PYTHON, C

### Languages

ENGLISH (PROFESSIONAL WORKING PROFICIENCY)

FRENCH (NATIVE LANGUAGE)

SPANISH (NATIVE LANGUAGE)

## Experience

### Expedia Group

Geneva, Switzerland

SOFTWARE DEVELOPMENT ENGINEER III

Jan. 2021 - Present

I am working in the pricing optimization team, which develops and operates a suite of services enabling Expedia Group to provide the best possible deals to travelers by dynamically adjusting prices. My work consists of designing, implementing, and maintaining low-latency micro-services with a high availability & throughput.

- Development of multiple applications receiving up to 2M TPS, at peak time. Written in Java, Scala & Kotlin.
- Logging, metrics and monitoring with DataDog, Grafana & Splunk.
- Infrastructure as code using Terraform & Cloudformation.
- Leveraging various AWS technologies: SNS, SQS, S3, RDS, ElastiCache, LoadBalancer, VPC, ECS/EC2 with auto scaling
- CI/CD with TeamCity, Github Actions, Spinnaker and Jenkins.

### Oracle Labs

Zurich, Switzerland

SOFTWARE ENGINEER INTERN

Feb. 2020 - Aug. 2020

I worked on making efficient property projections in an in-memory graph query runtime. I managed to implement a solution that allows graph queries to be faster than SQL queries in most cases using much less memory.

### Facebook

London, United Kingdom

SOFTWARE ENGINEER INTERN

July 2018 - Oct. 2018

I worked on Fresco, an Android image management library. I reduced the size of the library by two by providing an alternative implementation that did not depend on native code without losing functionalities or performance.

### PocketCampus Sàrl

Lausanne, Switzerland

SOFTWARE DEVELOPER

June 2017 - June 2019

Implementation of the Android version of the official EPFL campus app.

## Publications and awards

### Oracle Labs and CDMS 2022 publication

Zurich, Switzerland

MASTER THESIS

2022

Publication of my Master thesis focused on Efficient Property Projections of Graph Queries over Relational Data.

### Teaching Assistant Award

Lausanne, Switzerland

SOFTWARE ENGINEERING BY PROF. GEORGE CANDEA

2019

I won the teaching assistant award for teaching excellence during my time as a teaching assistant for the software engineering class. I was providing technical support for students, introducing them to software engineering techniques such as SCRUM, Design Patterns, Testing, git and I was testing and reviewing their projects which consisted in building an Android app.

## Projects

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### **Lancet: A self-correcting Latency Measuring Tool**

*Switzerland*

WRITTEN IN C & PYTHON

*Feb. 2019 - Dec. 2019*

I worked on Lancet, a self-correcting latency measuring tool. My work consisted in implementing agents that leverage NIC-based hardware timestamping to measure RPC end-to-end latency using exclusively the standard Linux kernel-based implementations of networking protocols to achieve precise  $\mu$ s-scale client-side measurements. I also extended my work by implementing the full TPC-C benchmark within the Lancet framework.

### **Lisp-like language compiler and garbage collector**

*Switzerland*

WRITTEN IN SCALA & C

*Jan. 2018 - June 2018*

Implementation of key parts of a compiler and a run time system for a Lisp-like programming language. The project includes the implementation of high level concepts such as closures, continuations and tail call elimination. But also the usage of intermediate representations to perform optimizations. A Mark-and-Sweep garbage collector written in C was also implemented.

### **Android development**

*Switzerland*

WRITTEN IN JAVA

*Jan. 2017 - June 2019*

Integration of new features in the EPFL Campus app. My main focus has been on improving functionalities such as: Moodle, Maps, Public Transport, Campus card, Restauration,... to make life at EPFL easier for the students and employees.