Adrien **Ghosn**

PhD STUDENT IN COMPUTER SCIENCE

19B Avenue de Tivoli, 1007 Lausanne

(+33) 6 13 17 61 55 | ✉ ghosn.adrien@gmail.com | 🏠 https://people.epfl.ch/adrien.ghosn | 🔗 aghosn | 🔗 aghosn

Education

Ecole Polytechnique Federale de Lausanne(EPFL)
COMPUTER SCIENCE ENGINEERING

Lausanne, Switzerland

Sep. 2010 - PRESENT

- 2016 – Present: PhD in Datacenter System Laboratory, supervised by Prof. Edouard Bugnion
- 2013 – 2016: Master Degree, Foundations of Software specialization (avg 5.75/6)
- 2010 – 2013: Bachelor Degree

Northeastern University(NEU)
MASTER THESIS

Boston, U.S.A.

Sep. 2015 - Mar. 2016

- Supervised by Prof. Jan Vitek in the Programming Languages Laboratory

Carnegie Mellon University(CMU)
EXCHANGE YEAR IN BACHELOR DEGREE IN COMPUTER SCIENCE

Pittsburgh, U.S.A.

Aug. 2012 - Jul. 2013

- Dean's list School of Computer Science for QPA > 3.75/4

Skills

Programming	Go, C/C++, Java, Scala, Shell scripting, asm, Python, JavaScript
Knowledge in	Operating System design, Trusted Execution Environments (SGX), Compilers & PL design, Theoretical CS, Concurrent & Distributed Algorithms, IT security & Cryptography, Web technologies, Databases, Big Data

Research

Current Research Area
EPFL, DCSL - PROF. EDOUARD BUGNION

Lausanne, Switzerland

Aug. 2017 - Present

- Intersection between PL, systems, and Security
- Abusing existing programming abstractions to provide efficient support for security hardware extensions
- Information flow-control between code modules and in distributed systems

Go & SGX
EPFL, DSCL - PROF. EDOUARD BUGNION, PROF. JIM LARUS

Lausanne, Switzerland

Jun. - Aug. 2018

- Extended the goroutine abstraction and Go compiler to transparently support executing goroutines inside Intel SGX.
- 4x improvement over standard SGX library.
- Intel SGX, Confidentiality, Intergrity, Go, Compilers, Code partitioning, Hardware Extensions

Light-Weight Contexts in Dune
EPFL, DSCL - PROF. EDOUARD BUGNION

Lausanne, Switzerland

Sep. 2016 - Jul. 2017

- Leveraged Dune to allow threads to switch between different views of an address space and take snapshots.
  Allows to protect secrets while executing untrusted library code, or to restore a prestine state after executing an RPC.
- 5x speed improvement over a linux fork.
- Intel VTX, Dune, Virtualization, Kernel module, Virtual Memory Management

Efficient Runtime Deoptimization for R(Master Thesis)
NORTHEASTERN UNIVERSITY - PROF. JAN VITEK

Boston, U.S.A.

Sep. 2015 - Mar. 2016

- Assumption-based optimizer for an R JIT compiler to remove performance bottlenecks inherent to the language, while preserving semantics at runtime.
- On-stack replacement, assumption-based compiler optimizations, runtime deoptimization, R, LLVM, JIT compilers

Aperiodic-Event Support in FASA
ABB CORPORATE RESEARCH - DR. MANUEL ORIOL

Baden, Switzerland

Feb. 2015 - Aug. 2015

- Fixed-priority servers, data-driven events, real-time control applications, kernel design, dynamic linking/loading & software updates, pi-calculus

Scalameta: AST Persistence & Obey: Code Health   *Lausanne, Switzerland*

EPFL, LAMP - Prof. Martin Odersky & Dr. Eugene Burmako   *Jan. 2014 - Feb. 2015*

- Obey: Scala-linter that accepts user-defined rules enforced at compile-time.
- AST Persistence: typed-AST based format for Scala code to resolve compiler version incompatibilities and facilitate maccros expansions in IDEs.

Projects

Operating Systems & Design 15-410   *CMU*

Undergraduate   *Jan. 2013 - Jul. 2013*

- Implementation of a x86 Unix like Kernel in C and ASM. The project required to design and implement the thread library, the virtual memory, the drivers for the display, keyboard and clock, the system calls and an efficient scheduler

Tweet Aggregator   *EPFL*

Graduate   *Jan. 2014 - Jul. 2014*

- Big Data web application that gathers and displays real-time tweets according to user-defined keywords. The application gives a fine-grained filtering of tweets according to zoom-level and selected geographical areas. The project evolved into crossstream.ch

Compiler & Advanced Compiler   *EPFL*

Graduate   *Sep. 2013 - Jul. 2014*

- Design & implementation of compilers for Java & Lisp-like languages, with optimization phases including DCE-CSE, constant folding, closure hoisting, and the full implementation of a mark & sweep garbage collector.

Personnal

Languages   Fluent in French & English, notions in Italian & Roumanian.

Extra-curricular
- TA in Introduction to Java Programming (2018)
- TA in Systems for Data Science
- TA in Introduction to C Programming (2016,2017)
- TA in Concurrent Programming (2015)
- Student Volunteer at ECOOP (2016)