SALWA SOUAF

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EDUCATION

INSA Centre Val de Loire / Northern Arizona University   *2017 - Present*

PhD in informatics: Formal Methods Meet Security in a Cloud Brokerage Solution

Co-supervised :

August 2017 - Mai 2019 *at* Northern Arizona University *by* Frederic Loulergue

Mai 2019 - Present *at* INSA Centre Val de Loire *by* Pascal Berthomé

Orléans University   *2016 - 2017*

Master 2 (Nomad Computing and Computer Security)

In parallel with my fifth year at INSA Centre Val de Loire

INSA Centre Val de Loire   *2015 - 2017*

Engineering degree in IT Security and Technology

Double diploma contract between INSA and ENSA

ENSA Khouribga, Morocco   *2011 - 2017*

Engineering degree in Computer Science

PROFESSIONAL EXPERIENCES

INSA Centre Val de Loire   **May 2019 - November 2020**

Ph. D. Contract (Demi bourse Region)

Northern Arizona University   May 2017 - May 2019

Graduate Research Assistant

LIFO (Fundamental Computer Science Laboratory of Orléans)   February - August 2017

End of studies & Master2 Internship

· Research Team: Security of Data and Systems [SDS]

· Subject: Dynamic security in a Cloud Federation

· Supervisor: Pascal Berthomé

Renault Nissan Alliance, Paris   June - August 2016

Internship

Subject: Feasibility Study for an IT Crisis Management Tool Project

SOMACA (Moroccan Society of Automobile Construction)   June - August 2015

Internship

Subject: WorkFlow Management

TEACHING EXPERIENCES

Academic year 2019/20

→ **Advances Object Oriented Programming: Java** - *Course manager*   10h40 CM 21h20 TD

- Level: 4th year of engineering school

- Role: I was fully in charge of the course, lecture, practical work and examination

- Summary: The course contains advanced aspects of object oriented programming in Java. Covering aspects related to the JVM, concurrent programming, modules, inputs / outputs

→ **Formal Specification** - *Course Manager*   10h40 CM 10h40 TD

- Level: 4th year of engineering school

- Role: I designed the course from scratch. Opting for a tutorial-like course structure. Aiming to introduce the importance of program specification in order to prevent fatal bugs. This pedagogy enables students to progress at their own pace autonomously. In addition, it allowed me to introduce the fundamental concepts via a case study about specifying a memory module of the Contiki IoT OS. I chose this case study because the course was part of the advanced modules on Mobility.

→ **Introduction to software engineering: testing** - Practical Work   8h TP

- Level: 3rd year of engineering school

- Role: I supervised the practical work sessions, introducing software testing. One challenge of this class is that students have extremely different backgrounds, some having already studied computer science for two years while others are yet to discover the subject.

PUBLICATIONS

Refereed International Conferences

[1] Salwa Souaf, Pascal Berthomé, and Frédéric Loulergue. A cloud brokerage solution: Formal methods meet security in cloud federations. In *2018 International Conference on High Performance Computing & Simulation, HPCS 2018, Orléans, France, July 16-20, 2018*, pages 691–699. IEEE, 2018. `https://hal.archives-ouvertes.fr/hal-02317089`.

[2] Salwa Souaf and Frédéric Loulergue. A first step in the translation of alloy to coq. In *Formal Methods and Software Engineering - 21st International Conference on Formal Engineering Methods, ICFEM 2019, Shenzhen, China, November 5-9, 2019, Proceedings*, volume 11852 of *Lecture Notes in Computer Science*, pages 455–469. Springer, 2019. `https://hal.archives-ouvertes.fr/hal-02317118`.

WORK IN PROGRESS

Salwa Souaf, Pascal Berthomé and Frédéric Loulergue. Security in Cloud Brokerage Solutions: Survey.

Salwa Souaf, Pascal Berthomé and Frédéric Loulergue. A cloud brokerage solution for security : Updated Model.

TALKS AND SEMINARS

Conference	A first step in the translation of alloy to coq, ICFEM, Shenzhen, China, 2019
Seminar	A security aware Cloud Brokerage Solution, LIFO, Bourges, France, 2019

COURSES TAKEN

Northern Arizona University	Nanotechnology for Cybersecurity
	Data Mining and Machine Learning
	Statistical Methods
Summer School	SILM (Security of software / hardware interfaces) 2019
	in Inria Rennes
MOOC (Coursera)	Google Cloud Platform Fundamentals: Core Infrastructure
Conferences	USENIX 2018
	ESORICS 2019

COMPUTER SKILLS

Langages	C/C++, JAVA, Python, PHP, PL/SQL, Ruby, Alloy, Coq, R
Protocols & APIs	XML, JSON, SOAP, REST
Operating systems	Linux (Ubuntu, Debian, Kali), Microsoft Windows, MacOS

ACADEMIC KNOWLEDGE

Computer sciences	System Security, Network Security, System Administration, Network Administration, Oracle Database Administration...
Mathematics	Numerical Analysis, Operational Research, Heuristics Methods, Algorithmic Complexity...

LANGUAGES

Trilingual	Perfect in read, write and speak: Arabic, French & English

DIVERS

Activities	Member of ISI Club (club d'Informatique et de Sécurité Informatique de lINSA Centre Val de Loire Computer Sciences and Computer Security Club) - 2016 Active member of ENACTUS ENSA Khouribga club (entrepreneurial-action-us) - 2013
Hobbies	Playing sports (Table Tennis) Learning new languages