

FLAVIEN RONTEIX-JACQUET

PERSONAL INFORMATION

French, 15 April 1996

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MOTIVATION

Find a job on Research engineering after a PhD.

EDUCATION

2019-2022 IMT Atlantique — Rennes (France)

PhD of Computer Networks

School: MathSTIC (Mathématiques et STIC)
Thesis: *Mastering latency in 5G Radio Access Networks*
Description: This PhD explores the issue of latency in cellular networks. Particularly, it focuses on base station radio resource allocation uplink mechanisms.
Contributions: LatSeq for internal latency measurement in OpenAirInterface base station; Radio Access Network latency analysis; Enhanced-BSR to estimate user's need in transmission; Uplink time-domain scheduling algorithm to increase radio resource utilization.
Advisors: Prof. Xavier LAGRANGE & Assoc. Prof. Alexandre FERRIEUX & Assoc. Prof. Isabelle HAMCHAOUTI

2014-2019 INSA Centre Val de Loire — Bourges (France)

Master of Engineering

School: Security and Information Technologies
Description: This engineering school focussed on computer science and cybersecurity.
Specialities: Ubiquitous system security · Artificial Intelligence

2018-2019 TalTech — Tallinn (Estonia)

Master Degree of Information Technology

School: Information Technologies
Description: Erasmus double master degree of Information Technology
Specialities: Internet of Things · Robotic · Advanced Computer Programming

WORK EXPERIENCES

2019-Present PhD student at ORANGE INNOVATION — Lannion

Orange Innovation (Networks)

Title: *Mastering latency in 5G Radio Access Networks*
Description: PhD made at Orange entreprise's laboratories. Working on cellular networks with an OpenAirInterface lab testbed.
Reference: Alexandre FERRIEUX · alexandre.ferrieux@orange.com

Feb-Aug 2019 Master Internship, ORANGE LABS NETWORKS — Lannion

Orange Labs Networks

Title: *Attack, Failure, or Error - Deeply Encrypted Internet Dark Detection Heuristic Design*
Description: A work to develop methods to detect losses and errors for QUIC

protocol. Results used for QUIC standardization at IETF.
Reference: Isabelle HAMCHAOUI · isabelle.hamchaoui@orange.com

Apr-Jul 2018 Master Internship, CLIRIS — Courbevoie

Cliris

Title: *Artificial Intelligence for person detection in a crowded context*
Description: Deep learning applied to computer vision to detect person in crowded situation.
Reference: Oussama HADJERCI · [Oussama Hadjerici](#)

2017 President of COD'INSA — Lyon

Cod'INSA

Description: Cod'INSA is an association to organize an Algorithmic and AI competition inside INSA engineering schools group.
Skills: Management of a multi-site competition and public relationship with sponsors.

2016 – 2017 President of ROBOTIC club — Bourges

Robotic club

Description: Robotic club of INSA participate to France robotic cup.
Skills: Electronic and embedded system development and Team management.

2017, 2018 Summer job, postman — Vierzon

La Poste

Description: Postman during summer vacation.
Skills: Organization, rigor and customer relationship.

PUBLICATIONS

Mar 2021 LatSeq: A Low-Impact Internal Latency Measurement Tool for OpenAirInterface

IEEE WCNC'21

Building a thorough understanding of latency in the 5G-NR RAN requires a reliable system level measurement tool able to collect relevant data in a broad range of situations. For this purpose, we propose LatSeq, an open-source software extension aimed at providing the OpenAirInterface Base Station with internal latency measurement capabilities. This paper discusses its design choices and evaluates its fitness for purpose in a first baseline usage scenario. We demonstrate the low impact of LatSeq on the observed system, the usefulness of statistics it enables and the relevance of its capability of tracing individual packet journeys inside the base station.
DOI: [10.1109/WCNC49053.2021.9417345](https://doi.org/10.1109/WCNC49053.2021.9417345)

Aug 2021 On Radio Access Network Uplink Latency and Jitter : Measurements and Analysis

IEEE ITC-33

This work studies the latency experienced by a TCP connection in an operational LTE RAN. After exhibiting the well-known downlink bufferbloat phenomenon, our experiments shed some light on the less studied RAN uplink jitter. We explain this uplink jitter by the uplink grant-based access method. These results are reproduced in a lab environment based on the OpenAirInterface software RAN, and demonstrate the importance of RAN configuration and limitations in the current LTE standard. We conclude on open issues in the 5G grant allocation process and the current grant-free access methods.
IEEE: <https://ieeexplore.ieee.org/document/9625606>

Jul 2021 Considering return path latency in access networks

NetSatDay

Identifying the latency induced by return link in cellular radio access networks and why we need to work on it for future services and transport protocols.
HAL: <https://hal.archives-ouvertes.fr/hal-03327308>

Sept 2019 Attack, Failure, or Error - Deeply Encrypted
Internet Dark Detection Heuristic Design

Master Thesis

Deploye depuis 2014 et intenselement promu par Google, le protocole QUIC, tres proche fonctionnellement de TCP, ajoute a ce dernier un niveau de chiffrement inedit, anonymat et non traabilite obligent. Consequences de ce chiffrement profond, les pertes et les delais, utilis classiquement pour detecter et localiser les causes de dgradation de l'experience des clients deviennent inaccessibles. Dans ce contexte, et sur la base de propositions defendues actuellement par Orange Labs au sein de l'Internet Engineering Task Force (IETF), Je mets au point des mecanismes implicites de mesure des degradations dans le cadre du protocole profondement chiffre QUIC.
Thesis: [Thesis manuscript in french](#)

Aug 2018 Realtime detection of person in locally crowded
context with state-of-the-art deep learning technics

Master Thesis

Deep Learning applied to computer vision to detect person in a crowded context.
Thesis: [Thesis manuscript in french](#)

Nov 2017 Security of PLCs with Raspberry Pi

CSAW'17

As the new CSO team of CannotPwn Factory, we have to build a new system to control the factory. The last team failed to handle a cyber attack. In result our company lost a lot of money, and we have to built a new system more resilient. Today, the PLCs are more present in factory, and control a lot of criticals infrastructures. But, this systems are really weak, so they are a great target to reduce productivity of industries or plant. The biggest example of cyber attack against PLC's is stuxnet. This program set up a huge ?man in the middle? attack and corrupt data received and send to the PLCs. In result, stuxnet was able to distort the comportment of PLCs and deteriorate the centrifuge of Iranian power plants.
Paper: [ResearchGate](#)

OTHER INFORMATION

Computer Skills

INTERMEDIATE · Network cybersecurity, Algorithmic, System security, Internet of Things, Embedded systems, Deep Learning, RUST
ADVANCED · Cellular Networks, LINUX, C, PYTHON, Scripting

Awards

2017 · 2nd place ESC CSAW Competition, Valence
2018 · 2nd place Techcrunch IBM Hackathon, Paris
2019 · 3rd place Renault Hackathon "Light is digital", Paris

Languages

FRENCH · Mothertongue
ENGLISH · TOEIC (conversationally fluent)
CHINESE · HSK3 (words and phrases only)
FINNISH · A2 (simple words and phrases only)

Interests

SCIENCES (physics, astronomy, maths) · PHILOSOPHY (reading, writing) · POLITIC (civic engagement) · TECHNOLOGY (Robotic, Network management) · ART (design, architecture, drawing) · Piano · Running ·