

# Dr Kevin NGUETCHOUANG NGONGANG

PHD ENS LYON

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Birthday: 08/09/1998

## FIELDS OF INTEREST

- Software Engineering
- Security
- Operating System and Virtualisation
- Machine Learning

## EDUCATION

### Ph.D Student

ENS Lyon | December 2020 - April 2024

Supervisors: Alain TCHANA & Pierre OLIVIER

- Worked on the qemu stack, especially the qcow2 block format to optimize the use of resources when the size of storage increases (optimize performances at scaling)
- Proposed a new design that will scale with the size of the storage to be useful for cloud providers: the case of the Ceph open-source system

### National Advanced School of Engineering - Yaounde

Student Engineer | September 2017 - October 2020

- Entered the school through *the competitive entrance examination* for the Bachelor's level which has an acceptance rate of 5% in the whole country for 300 brave participants.
- Currently, had a GPA of 3.2/4 cumulated during these 2 last years and ranked at the top 1% of my promotion.
- Participated at Indaba X Cameroon

### University Institute of Technology

Student in IT | Sept 2014 - Sept 2017

- Completed in July 2017 with Bachelor in Software Engineering and in Network and Internet Design
- Dschang University best student award with a GPA of 3.7/4, major of my promotion
- Contributed to The PB-HEV project enrollment as Mobile Engineer assistant to help to build the Android application for this purpose - this project aimed at distributing computers offered by the president of the republic across all the country
- Attended a WorkShop on IOT by programming in arduino

## WORK EXPERIENCE

### Research Engineer

Grenoble INP - LIG | June - November 2024

- Create utilities and tools to reduce WaLT platform consumption via Wake-On-LAN. The WALT platform seeks to reduce power consumption by turning off nodes that have not been used for at least two hours. WaLT is a platform to create easy private testbeds to ensure experimental reproducibility. See more on <https://walt-project.liglab.fr/>
- Extend the platform by VPN. Work has been undertaken to extend a WALT platform over large distances, and thus be able to carry out realistic experiments with long-range wireless protocols, such as the LoRa protocol.

### Security Research Assistant

The University of Manchester | February - July 2023

- Developed a model to detect syscalls in binaries using static analysis and symbolic execution
- Modeled a phase detection mechanism to retrieve allowed syscalls chain in binaries specifically in the case of containers.

### Research Intern

LIP Lyon - Avalon | April - October 2020

- Developed a module for intercepting data flow between the cache of openwhisk invokers and remote storage in order to optimize request. This helps to have a cost-effective system while using serverless providers' resources.
- Developed a model for Intelligent resource allocations to FaaS functions
- Worked on docker registry trace player to analyse and understand large object caching in IBM in order to apply it to Openwhisk FaaS system
- Actually, this work was presented at the EuroSys Conference in April 2021 under the name "[OFC: Opportunistic Free Caching system for FaaS platforms](#)"

## WORK EXPERIENCE

### IT Engineer

SABC - Society of Brewing in Cameroon | June - September 2019

- Retrieved and structured data using a php Laravel automated script gather from different sources from all the production processes to track this production
- Developed interfaces for automated reporting and tracking using echartsJS in order to improve their Manufacturing Executing System because the old reporting method was static, using Microsoft Excel.
- Designed and developed the hierarchy of the company's infrastructure (subsidiaries, manufacturing workshop, laboratories,...) for dynamic usage - In order to facilitate the monitoring and maintenance of the entire infrastructure.

### Mobile & Web Developer

Music platform VRJMusic | June - August 2018

- Develop cross-platform mobile apps (Android, IOS, Windows Phone) using React Native to increase high availability and promotion of music in the whole country
- Modeling a recommender system based on Collaborative filtering and music preferences

### Mobile & IT Engineer

Acerfi Cameroon - Training Center & IT provider solutions  
June - August 2016

- Developed cross-platform apps for mobile using Ionic in order to improve the Acerfi training center management performance. Before our system, 2 trainers was doing extra Backgroundhours to fill in the students' final marks. Now, with our solution, final marks are generated so that extra hours doesn't exist at all; and also, students can follow their marks anywhere using internet.
- Attended at training as an IT trainer for beginners on Software Development and Operating systems basics (C/C++/GNU bash)

## TEACHING

### L3 Assistant Teacher

InfoMaths department at ENS Lyon  
September 2021 - January 2022

- In charge of practical works, TDs sheet in the course "Circuits logiques et réseaux informatiques"

## GRANTS

### ACM SIGMETRICS grants 2021

## PERSONAL PROJECTS

- Eshop: Desktop application for a shop, made with Java to manage the catalog of products, the orders and the compatibility of all the shop. *Already in production*
- DMPTCP: Distributed version of the Multipath TCP protocol using Linux Networking programming (C language and Linuk Kernel programming also used).
- atbswp: A multiplatform open clone of tinytask. Made in python, it allows the user to record his mouse and keyboard actions and reproduce them as many times he wants. *First Release already exist.*

## PUBLICATIONS

### Middleware 2024 - International Conference

SysFinder: Binary-Level Static System Call Identification  
Gaspard Thévenon, [Kevin Nguetchouang](#), Kahina Lazri, Pierre Olivier, Alain Tchana

### IEEE TCC 2024 - Journal

Nami: Navigating Between Replicas in Distributed Storage Systems  
(under final review)  
[Kevin Nguetchouang](#), Pierre Olivier, Alain Tchana

### IEEE TCC 2024 - Journal

SVD: A Scalable Virtual machine Disk Format  
[Kevin Nguetchouang](#), Stella Bitchebe, Théophile Dubuc, Mar Callau-Zori, Christophe Hubert, Pierre Olivier, Alain Tchana

### Compass 2022 - National Conference

sQemu: vers un stockage virtuel scalable  
[Kevin Nguetchouang](#), Stella Bitchebe, Théophile Dubuc, Pierre Olivier, Alain Tchana, Mar Callau-Zori

### EuroSys 2021 - International Conference

OFC: Opportunistic Free Caching system for FaaS platforms  
Djob Mvondo, Mathieu Bacou, [Kevin Nguetchouang](#), Lucien Ngale, Stéphane Pouget, Josiane Kouam, Renaud Lachaize, Jinho Hwang, Tim Wood, Daniel Hagimont, Noël De Palma, Bernabé Batchakui, Alain Tchana

### JourneesCloud 2020 - National Conference

FaaSCache: Caching platforms for FaaS applications  
[Kevin Nguetchouang](#), Lucien Ngale, Stéphane Pouget, Djob Mvondo, Mathieu Bacou, Renaud Lachaize

## TALKS

### Presentation of my work to Natacha Crooks

during visit to our team at the invitation of Pr Alain Tchana for a talk on her work  
July 2021

### "Séminaire CVS: Cloud, Virtualisation, Système"

co-organized with Pr Alain Tchana and Pr Jalil Boukhobza  
teams  
June 2021

## PROGRAMMING AND LANGUAGE SKILLS

### Programming

C, C++, Python, Bash,

### Languages

French: Native (C2)

English: Advanced (C1)

## PERSONAL INTEREST

### Dance, Video Games, Reading

I like dancing (any dance but especially Latino dances), playing video games even if I am bad and reading any science-fiction and futurist novels

## SERVICE

### Technical Program Committee

BigData'23 reviewer

Eurosys'22 sub-reviewer (main reviewer: Alain Tchana)

OSDI'22 sub-reviewer (main reviewer: Alain Tchana)

### Student Mentoring

Carole NOUCTI DJEUMO

M2 Engineering School of Libreville, Gabon

Topic: Transform snapshot chain to SVD-based snapshot chain

*Co-supervised with Alain TCHANA*

Actually Ph.D student at UCLouvain