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# Dr Stella Bitchebe

Ph.D. in Computer Science  
(Operating Systems and  
Virtualization)

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Nationality: Cameroonian



## Education

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March 2019 - February 2023	<b>Ph.D. in Computer Science</b> <b>Theme: “Out-of-Hypervisor (OoH): When Nested Virtualization Becomes Practical”</b> <b>Supervisor: Pr. Alain Tchana</b> Laboratory i3S, Côte d’Azur University, Nice, France Laboratory LIP, ENS Lyon, Lyon, France
2015 - 2018	<b>Diploma of Engineering (Master Degree) in Computer Science</b> National Advanced Polytechnic School of Engineering of Yaounde (ENSPY), Cameroon Valedictorian of the graduating promotion
2012 - 2015	<b>Two Year University Degree in Mathematics (DEUG)</b> Faculty of Sciences, University of Yaounde 1, Cameroon
2012 - 2014	<b>Senior Statistics Technician</b> Sub-Regional Institute of Statistics and Applied Economics (ISSEA), Cameroon Vice Valedictorian of the graduating promotion
2011 - 2012	<b>Classes Préparatoires aux Grandes Ecoles</b> ENS Yaounde, Cameroon Valedictorian
2011	<b>Baccalaureate</b> General Leclerc High School (LGL), Yaounde - Cameroon Valedictorian

## Publications

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➤ *Pending Submissions*

### **SIGMETRICS 2023**

**Stella Bitchebe, Yves Kone, Pierre Olivier, Jalil Boukhobza, Yérom-David Bromberg, Daniel Hagimont, Alain Tchana**

➤ *International Conference Papers*

**Out of Hypervisor (OoH): Efficient Dirty Page Tracking In Userspace Using Hardware Virtualization Features**

**Stella Bitchebe & Alain Tchana**

Accepted at the International Conference for High Performance Computing, Networking, Storage and Analysis, SC22 (A Rank, Core 2021) [[pdf](#)][[slides](#)]

### Extending Intel PML for Hardware-Assisted Working Set Size Estimation of VMs

**Stella Bitchebe**, Djob Mvondo, Alain Tchana, Laurent Réveillère, Noel De Palma

Proceedings of the 17th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments, VEE 2021 (A Rank, Core 2020) [[pdf](#)][[slides](#)]

### Everything You Should Know About Intel SGX Performance on Virtualized Systems

Tu Dinh Ngoc, Bao Bui, **Stella Bitchebe**, Alain Tchana, Valerio Schiavoni, Pascal Felber, Daniel Hagimont

Proceedings of the ACM on Measurement and Analysis of Computing Systems, Sigmetrics 2019 (A\* Rank, Core 2021) [[pdf](#)]

## ➤ International Workshop Papers

### Study of Intel PML Effectiveness

**Stella Bitchebe**, Alain Tchana, Laurent Réveillère

13th EuroSys Doctoral Workshop, Eurosys 2019 (A Rank) [[pdf](#)]

## ➤ National Conference Papers

### Applying Intel SPP Feature for Buffer Overflows Mitigation

**Stella Bitchebe**, Yves KONE, Alain Tchana

National Conference in Parallelism, Architecture and System (Compas) 2022

### Characterization and Methodology of Buffer Overflow Analysis

Yves KONE, **Stella Bitchebe** & Alain Tchana

National Conference in Parallelism, Architecture and System (Compas) 2022

### sQemu: Vers un Stockage Virtuel Scalable

Kevin Nguetchouang, **Stella Bitchebe**, Théophile Dubuc, CALLAU-ZORI Mar, Christophe Hubert, Pierre Olivier, Alain Tchana

National Conference in Parallelism, Architecture and System (Compas) 2022

### Buffer Overflows

Yves KONE, **Stella Bitchebe** & Alain Tchana

Journées Cloud 2020 [[pdf](#)]

### Everyone Should Benefit from Hardware Assisted Virtualization, Not Only the Hypervisor

Thévenon Gaspard, **Stella Bitchebe**, Vo Quoc Bao Bui, Alain Tchana

Journées Cloud 2020 [[pdf](#)]

### Hardware Assisted Virtual Machine Page Tracking

**Stella Bitchebe**, Djob Mvondo, Alain Tchana, Laurent Réveillère, Noel De Palma

National Conference in Parallelism, Architecture and System (Compas) 2019 [[pdf](#)]

## Talks

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Speaker at the “Scientific Days” seminar at Polytechnic Yaounde

*Yaounde, Cameroon, December 2022*

Guest researcher at the Sephora Berrebi Scholarship ceremony

*Paris, France, June 2022*

Invited speaker at IRISA. Presentation of work on OoH (Out of Hypervisor)

*Rennes, France, April 2022*

Invited speaker at the event “La science un CV\_22\_Stellamétier de femmes”

*ENS Lyon, France, March 2022*

Invited speaker at the conference “Can the digital future be more virtuous and sustainable?”

*Bibliothèque Municipale de Lyon, Lyon, France, January 2022*

Talk on my work and my project against the harassment of young girls in the academic environment to the Minister for the Promotion of Women of Cameroon

*Ministry for the Promotion of Women and the Family, Yaounde, Cameroon, December 2021*

Talk on my work and my project against the harassment of young girls in the academic environment to the Minister of Youth of Cameroon

*Ministry of Youth, Yaounde, Cameroon, December 2021*

Presentation of the my research project to the NEC team, during our first fellowship meeting (visio conference)

*Lyon, France, July 2021*

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

*ENS Lyon, France, July 2021*

“Séminaire CVS: Cloud, Virtualisation, Système” co-organized with Pr Alain Tchana and Pr Jalil Boukhobza teams

*ENSTA-BRETAGNE Brest, France, June 2021*

Processing of oral defenses of DS4H tutored projects

*Univeristé Côte d’Azur, France, April 2020*

Invited speaker the event “La science un métier de femmes”

*ENS Lyon, France, March 2020*

Hardware Assisted Virtual Machine Page Tracking: Compas 2019

*Anglet, France, July 2019*

Study Of Intel PML Effectiveness: EuroSys Doctoral Workshop (EuroDW 2019)

*Dresden, Germany, March 2019*

Hardware Features for Virtualization - GDR and ASF Winter School on Distributed Systems and Network

*Village of Pleyne - Sept Laux, France, February 2019*

Speech to the student of the Computer Engineering Department about my career: Polytechnic Yaounde (ENSPY)

*Yaounde, Cameroon, September 2018*

## Current Research Projects

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**Out of Hypervisor (OoH):** OoH is a new virtualization research axis advocating the exposure of individually current hypervisor-oriented hardware virtualization features to virtual machines (instead of trying to virtualize full hardware inside VMs). This way VM’s processes can also benefit from those features. We first leveraged OoH to improve checkpoint/restore, garbage collectors, and buffer overflow detection systems. We are now seeking to implement OoH in bare-metal.

## Work Experience

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### Teaching

January - June 2022 (6 months)	<b>L3 Assistant Teacher at ENS Lyon, 32h</b> Ecole Normale Supérieure de Lyon (ENS), Department of Computer Science, Lyon, France Course on Architecture, Systems and Network: conception and implementation of Practical Works, student monitoring.
January - June 2020 (6 months)	<b>L3 Assistant Teacher at ENS Lyon, 32h</b> Ecole Normale Supérieure de Lyon (ENS), Department of Computer Science, Lyon, France Course on Architecture, Systems and Network: conception and implementation of Practical Works, student monitoring.
September – October 2018 (2 months)	<b>L3 Assistant Teacher at Polytechnic Yaounde, 8h</b> National Advanced Polytechnic School of Engineering of Yaounde (ENSPY), Department of Computer Science, Yaounde, Cameroon Course on Virtualization: class and exam preparation, paper correction, student monitoring.

## Research & Software Development

September - November 2022 (3 months)	<b>Research Internship at Microsoft Research Cambridge</b> <u>Place</u> : Microsoft Research, Cambridge, United Kingdom <u>Supervisor</u> : David Chisnall <u>Subject</u> : Improving memory safety in WAVM (WebAssembly Virtual Machine) using CHERI capabilities
March - August 2018 (6 months)	<b>Research Internship at IRIT</b> <u>Place</u> : Institut de Recherche en Informatique de Toulouse (IRIT) & Laboratoire de Recherche en Informatique de Bordeaux (LaBRI), France <u>Supervisors</u> : Pr. Alain Tchana & Pr. Laurent Réveillère <u>Subject</u> : Working Set Size estimation Technique Based on Intel PML (Page Modification Logging)
July – August 2017 (2 months)	<b>Internship at AAG</b> <u>Place</u> : Ashdown Advisory Group, Yaounde, Cameroon <u>Subject</u> : Development of a Business Intelligence module for the AAG's ERP (Enterprise Ressource Planning) X-Manager
November – December 2014 (2 months)	<b>Internship at MINESUP</b> <u>Place</u> : Ministry of Higher Education, Yaounde, Cameroon <u>Subject</u> : Realization of the Statistical Yearbook of the Ministry of Higher Education
February – May 2014 (4 months)	<b>Internship at MINESUP</b> <u>Place</u> : Ministry of Higher Education, Yaounde, Cameroon <u>Subject</u> : Design and Implementation of a Unified Database Application for National Universities of Cameroon

## Student Mentoring

October - December 2021	<b>Armél Nguetoum</b> M2 Student the Univeristy of Yaounde 1 - Department of
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(3 months)	Computer Science <u>Topic</u> : Dirty Page Tracking in Boehm GC Using Intel PML <b>Co-supervised with Alain Tchana</b>
March - September 2021 (7 months)	<b>Augusta Mukam</b> M2 Student at National Advanced Polytechnic School of Engineering of Yaounde - Department of Computer Science <u>Topic</u> : Security Policies for the Use of Intel SPP at User-space Level <b>Co-supervised with Alain Tchana</b> <b>Guest Rapporteur in her defense jury</b>
March – August 2020 (6 months)	<b>Yves Kone</b> M2 Student at Sorbonne University of Paris - Department of Distributed Systems and Applications <u>Topic</u> : Applying Intel Sub-Page Permission to Memory Security <b>Co-supervised with Alain Tchana</b>
July – August 2020 (2 months)	<b>Gaspard Thevenon</b> L3 Student at ENS of Lyon - Department of Computer Science <u>Topic</u> : Everyone Should Benefit from Hardware Assisted Virtualization, Not Only the Hypervisor <b>Co-supervised with Alain Tchana</b>

## Service to the Scientific Community

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Organizer of the 1<sup>st</sup> Edition of the [Scientific Days Cameroon](#) at the Polytechnic School of Yaounde  
National Seminar “Scientific Days Cameroon”, *December 2022*

Member of the Eurosyst’23 Shadow PC  
*European Conference on Computer Systems, October 2022 - March 2023*

Main Reviewer at TAAS Journal 2022  
*ACM Transactions on Autonomous and Adaptive Systems, August 2022*

Student Volunteer at “Unikraft Lyon Summer Code” 2022  
*ENS Lyon, May 2022*

Sub-Reviewer at TOCS 2022  
*Main Reviewer : Alain Tchana*

Co-Organizer of the day “La science : un métier de femmes”  
*ENS Lyon, Mars 2022*

Sub-Reviewer at DSN 2022  
*Main Reviewer : Alain Tchana*

“Mid-Career AMA” Session moderator at SOSP Diversity Workshop 2021  
*Online event, October 2021*

Sub-Reviewer at FCGS Journal 2021  
*Main Reviewer : Alain Tchana*

Sub-Reviewer at CRI’21 Conference  
*Main Reviewer : Alain Tchana*

Sub-Reviewer at Compas 2021  
*Main Reviewer : Alain Tchana*

Student Volunteer at “Journées Cloud 2020”: conception of the event [website](#)  
*ENS Lyon, November 2020*

Moodle Platform developer for UNESCO during the 2020’s lock down  
I was assigned the task of customizing/designing the platform according to the graphic charter of

UNESCO.

The aim was to provide a platform where teachers could offer thousands of free courses to students (who were then locked down during the COVID'19 pandemic).

The project was held in collaboration with Professor Alain Tchana, Dr Djob Mvondo and other engineers.

Co-Organizer of the day "La science : un métier de femmes"

*ENS Lyon, Mars 2020*

Sub-Reviewer at CRI'19 Conference

*Main Reviewer : Alain Tchana*

Student Volunteer at Compas 2018

*IRIT, July 2018*

## Posters

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### Applying the Intel SPP feature to buffer overflows mitigation

*Yves KONE, Stella Bitchebe, Alain Tchana*

National Conference in Parallelism, Architecture and System (Compas) 2022 [[pdf](#)]

### Characterization and Methodology of buffer overflows analysis

*Yves KONE, Stella Bitchebe & Alain Tchana*

National Conference in Parallelism, Architecture and System (Compas) 2022 [[pdf](#)]

### Reducing the Carbon Footprint of Data Centers while Improving their Security

*Stella Bitchebe*

UNESCO-L'Oreal for Women in Science (FWIS) France 2021 [[pdf](#)]

### Hardware Assisted Virtual Machine Page Tracking

*Stella Bitchebe, Alain Tchana, Laurent Réveillère*

National Conference in Parallelism, Architecture and System (Compas) 2019 [[pdf](#)]

### Study Of Intel PML Effectiveness

*Stella Bitchebe, Alain Tchana, Laurent Réveillère*

13th EuroSys Doctoral Workshop, Eurosys 2019 [[pdf](#)]

### Technique d'Estimation Du Working Set Basée Sur Le Page Modification Logging (PML)

*Stella Bitchebe, Alain Tchana, Laurent Réveillère*

National Conference in Parallelism, Architecture and System (Compas) 2018 [[pdf](#)]

## Administrative Responsibilities

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Member of the laboratory council (Ph.D. Students Representative), LIP laboratory, ENS Lyon

Member of the parity working group at LIP laboratory, ENS Lyon

Participation in the annual organization of the day: "La science : un métier de femmes", LIP laboratory, ENS Lyon

Organization of doctoral seminars, LIP laboratory, ENS Lyon

## Awards and Honors

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Laureate of the **2022 "Google Scholarship for Women in Computer Science"** (7k €, 19 Awardees in Europe and Middle East)

[Letter of congratulations](#) from the Minister for the Promotion of Women of Cameroon, for the awards obtained in 2021 during my 3<sup>rd</sup> PhD year

Received in Ministerial Audience by the Minister for the Promotion of Women of Cameroon (MINPROFF)

Received in Ministerial Audience by the Minister of Youth of Cameroon (MINJEC)

Received in Ministerial Audience by the Minister of Posts and Telecommunications of Cameroon (MINPOSTEL)

Laureate of the **2021 “Microsoft Research PhD Fellowship”** program (15k \$, 10 Awardees in Europe and Middle East)

Laureate of the **2021 “L’Oréal-UNESCO For Women in Science”** program (15k €, 35 Awardees in France)

Winner of the **“Concours Inria d’idées innovantes 2021”** (With my Ph.D. advisor)

Laureate of the **2021 “NEC PhD Research fellowship”** program (49k €, 7 Awardees in Europe and Middle East)

**Valedictorian** of my graduating promotion at **Polytechnic**, 2018

Finalist of the 2017 **“Huawei Seed For The Future”** program

**Major of the Entrance Competition at Polytechnic** School of Yaounde, 2015

**Best Student** of the decade at General Leclerc High School of Yaounde (2012)

Award of **Scientific Excellence** at General Leclerc High School (2011)

Winner of the National Competition (dissertation on the importance of water) organized by the Ministry of Water and Energy in Cameroon (2011)

## Conference Grants

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OSDI Grants 2021

ACM SIGMETRICS Grants 2021

ASPLOS Grants 2020

SRDS Grants 2019

Eurosys Grants 2019

## Programming and Languages Skills

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Programming

C, Assembly, C++, Awk

Languages

French: native language (C2), English: Upper Intermediate (B2)

## Mobility

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September - November  
2022

**Microsoft Research Cambridge**

Confidential Computing Team, Cambridge, United Kingdom

Since November  
2019

**ENS Lyon**

Laboratory LIP, Team AVALON, Lyon, France

January - October  
2019

**Université Côte d’Azur**

Laboratory i3S, Team SCALE, Sophia Antipolis, France

March - August  
2018

**Univeristé de Toulouse**

Laboratory IRIT, Team SEPIA, Toulouse, France

## Personal Traits

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Great adaptability and easy integration (mobility Yaounde - Toulouse - Nice - Lyon)

Great capacity for assimilation

Leadership

Ability to work simultaneously on multiple projects and under pressure



## Transversal Training

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How to deal with sexist remarks

*Caroline De Haas, Campus de Cely, France, October 2021*

Learn how to negotiate and build relationships

*Aurelien Colson, Campus de Cely, France, October 2021*

Personal development and team management

*Sabine Henrichfreise & Olivier Basso, Campus de Cely, France, October 2021*

Media Training

*EuroBusiness Media (Tatiana Haen), Online, France, July 2021*

Être lu : comment assurer la circulation de sa publication sur le web?

*Université Côte d'Azur, France, October 2020*

## Personal Interest

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I like cooking (specially decorate all the dishes I make and take a photo of them before tasting them)

I also like singing (I use to record myself covering some known songs and post them on social medias)

I also appreciate doing sport and a little bit cycling around

I am having new interest for self-training in nail artist

## Leadership and Organizations

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Organizer of the 1<sup>st</sup> edition of the seminar "Scientific Days Cameroon"

President of the association YCOWS (*Young Committed Women Scientists*)

General Secretary of the association CCF (*Chercheurs Camerounais de France*)

Mentor for the third edition of the "[\*Olympiades féminines de mathématiques\*](#)"

Role Model for the association [\*Rêv'ELLES\*](#)

## Media Coverage

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Event	Link
Video Reportage on me by the Cameroonian National Television, 2022	<a href="#"><u>Youtube</u></a>
Invited for a conference at the Municipal Library of Lyon, 2022	<a href="#"><u>BML</u></a>
Microsoft Research 2021 Global PhD Fellowship Recipients	<a href="#"><u>Youtube</u></a>
Articles in the regional newspapers of Nice, Lyon and Villeurbanne related to the award "Young Talents France 2021 L'Oreal-UNESCO Dor Women In Science"	<a href="#"><u>CNRS</u></a> <a href="#"><u>Tribune de Lyon</u></a> <a href="#"><u>Le Progrès Lyon</u></a> <a href="#"><u>HER magazine</u></a> <a href="#"><u>ENS Lyon</u></a> <a href="#"><u>Radio Scoop Lyon</u></a> <a href="#"><u>Lyon Entreprises</u></a> <a href="#"><u>ActuNice</u></a> <a href="#"><u>Tout Lyon</u></a>



[Ville de Villeurbanne \(Facebook\)](#)  
[Viva Villeurbanne](#)  
[Impact FM Lyon](#)

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Guest of the morning news at **BFM Lyon**  
October 8, 2021

[\*\*BFM - Part 1\*\*](#)  
[\*\*BFM - Part 2\*\*](#)

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**RFI** interview during the “Semaine de la Francophonie Scientifique” organized by the **AUF** in (Romania)  
September 23, 2021

[Facebook Interview](#)  
[Live Facebook](#)  
[Instagram Interview](#)

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“Concours Inria d’Idées Innovantes”, 2021

[ENS Lyon](#)  
[LinkedIn](#)

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Radio Interview with the **Cameroon National Television** (CRTV) - For the NEC PhD fellowship I was awarded, 2021

[LinkedIn](#)  
[Youtube](#)

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Video Interview with the **Cameroon National Television** (CRTV) - For the International Women Day 2021

[LinkedIn](#)  
[Youtube](#)