



**Research Interests:** Operating Systems, Virtualization, Systems for ML.

## 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> Laboratory i3S, Côte d’Azur University, Nice, France <b>Supervisor: Pr Alain Tchana</b> <b>Reviewers: Pr. Edouard Bugnion &amp; Pr. Gaël Thomas</b>
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

## Awards and Honors

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- **2022 “Google Scholarship for Women in Computer Science”** (7k €, 19 Awardees in EMEA)
- [Letter of congratulations](#) from the Minister for the Promotion of Women of Cameroon
- 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)
- **2021 “Microsoft Research PhD Fellowship”** program (15k \$, 10 Awardees in Europe and Middle East)
- **2021 “L’Oréal-UNESCO For Women in Science”** program (15k €, 35 Awardees in France)
- **“Concours Inria d’idées innovantes 2021”** (With Alain Tchana)
- **2021 “NEC PhD Research fellowship”** program (49k €, 7 Awardees in EMEA)
- **Valedictorian** of my graduating promotion at **Polytechnic**, 2018
- **2017 “Huawei Seed For The Future”** program (Finalist)
- **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)
- 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

## Publications

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### International

#### **Out of Hypervisor (OoH): When Nested Virtualization Becomes Practical**

**Stella Bitchebe**

Thesis, Hardware Architecture [cs.AR]. Université Côte d'Azur, 2023. [[pdf](#)][[slides](#)][[code](#)]

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

**Stella Bitchebe & Alain Tchana**

International Conference for High Performance Computing, Networking, Storage and Analysis, SC22 (A Rank, Core 2021), doi: 10.1109/SC41404.2022.00092 [[pdf](#)][[slides](#)][[code](#)]

#### **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](#)][[code](#)]

#### **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, POMACS 2019 Proceedings of the International Conference on Measurement and Modeling of Computer Systems SIGMETRICS 2019 (A\* Rank, Core 2018) [[pdf](#)]

#### **Study of Intel PML Effectiveness**

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

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

### National

#### **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](#)]

### Posters

#### **Efficient Buffer Overflow Detection In Virtualized Clouds Using Intel EPT-based Sub-Page Write Protection Support**

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

European Conference on Computer Systems, Eurosys 2023 [[pdf](#)]

#### **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](#)]

## **Current Research Projects**

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Data Preprocessing in ML at Hardware and OS Scale (DaPHOS) [[description](#)]

Out of Hypervisor (OoH) [[description](#)]

## **Work Experience**

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### **Postdoc at McGill University** (Ongoing, since 04/23)

Place: Montreal, Canada

Supervisor: Prof Oana Balmau

Subject: Improving data preprocessing in ML at hardware and OS scale

### **Research Internship at Microsoft Research Cambridge** (3 Months, 09/2023 - 11/2023)

Place: Microsoft Research, Cambridge, United Kingdom

Supervisor: David Chisnall

Subject: Improving memory safety in WAVM (WebAssembly Virtual Machine) using CHERI capabilities

### **Research Internship at IRIT** (6 Months, 03/2018 - 08/2018)

Place: Institut de Recherche en Informatique de Toulouse (IRIT) & Laboratoire de Recherche en Informatique de Bordeaux (LaBRI), France

Supervisors: Pr. Alain Tchana & Pr. Laurent Réveillère

Subject: Working Set Size estimation Technique Based on Intel PML (Page Modification Logging)

### **Internship at AAG** (2 Months, 07/2017 - 08/2017)

Place: Ashdown Advisory Group, Yaounde, Cameroon

Subject: Development of a Business Intelligence module for the AAG's ERP (Enterprise Ressource Planning) X-Manager

### **Internship at MINESUP** (2 Months, 11/2014 - 12/2014)

Place: Ministry of Higher Education, Yaounde, Cameroon

Subject: Realization of the Statistical Yearbook of the Ministry of Higher Education

### **Internship at MINESUP** (4 Months, 02/2014 - 05/2014)

Place: Ministry of Higher Education, Yaounde, Cameroon

Subject: Design and Implementation of a Unified Database Application for National Universities of Cameroon

## Teaching

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### **L3 Assistant Teacher at McGill University, 2h**

McGill University, School of Computer Science, Montreal, Canada

Introduction to Virtualization

### **L3 Assistant Teacher at ENS Lyon, 32h**

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.

### **L3 Assistant Teacher at ENS Lyon, 32h**

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.

### **L3 Assistant Teacher at Polytechnic Yaounde, 8h**

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.

## Student Mentoring

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### **Rahma Nouaji**

M1 Student McGill University - School of Computer Science

Topic: I/O Patterns in Machine Learning

**Co-supervised with Oana Balmau**

### **Yannick Nzali**

M2 Student the University of Dschang - Department of Computer Science

Topic: Monitoring data movements between machine components

**Co-supervised with Alain Tchana**

### **Armel Nguetoum**

M2 Student the University of Yaounde 1 - Department of Computer Science

Topic: Dirty Page Tracking in Boehm GC Using Intel PML

**Co-supervised with Alain Tchana**

### **Augusta Mukam**

M2 Student at National Advanced Polytechnic School of Engineering of Yaounde - Department of Computer Science

Topic: Security Policies for the Use of Intel SPP at User-space Level

**Co-supervised with Alain Tchana**

**Guest Rapporteur in her defense jury**

### **Yves Kone**

M2 Student at Sorbonne University of Paris - Department of Distributed Systems and Applications

Topic: Applying Intel Sub-Page Permission to Memory Security

**Co-supervised with Alain Tchana**

### **Gaspard Thevenon**

L3 Student at ENS of Lyon - Department of Computer Science

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

**Co-supervised with Alain Tchana**

## Service

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### Technical Program Committes

- Member of the Eurosys'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*
- Sub-Reviewer at TOCS 2022  
*Main Reviewer : Alain Tchana*
- 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*
- Sub-Reviewer at CRI'19 Conference  
*Main Reviewer : Alain Tchana*
- Student Volunteer at Compas 2018  
*IRIT, July 2018*

### Leardship and Organizations

- 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*
- 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](#)
- Student Volunteer at “Unikraft Lyon Summer Code” 2022  
*ENS Lyon, May 2022*
- Co-Organizer of the day “La science : un métier de femmes”  
*ENS Lyon, Mars 2022*
- Student Volunteer at “Journées Cloud 2020”: conception of the event [website](#)  
*ENS Lyon, November 2020*
- Co-Organizer of the day “La science : un métier de femmes”  
*ENS Lyon, Mars 2020*
- 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

### Software Development

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.

## 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*

## Programming and Language Skills

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Programming	C, Assembly, C++, Awk
Languages	French: native language (C2), English: Proficient (C2)

## Media Coverage

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- Invited to be a model as part of the photo exposition on the theme “**Femmes, Numériques et Inclusion**” at the Institut Français de Yaounde in Cameroon, at the occasion of the international week of women rights 2023 ([LinkedIn](#))
- Video Reportage on me by the **Cameroonian National Television**, 2022 ([Youtube](#))
- Invited for a conference at the Municipal Library of Lyon, 2022 ([BML](#))
- **Microsoft Research 2021** Global PhD Fellowship Recipients ([Youtube](#))
- Press 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**” ([CNRS](#), [Tribune de Lyon](#), [Le Progrès Lyon](#), [HER magazine](#), [ENS Lyon](#), [Radio Scoop Lyon](#), [Lyon Entreprises](#), [ActuNice](#), [Tout Lyon](#), [Ville de Villeurbanne](#))

([Facebook](#)), [Viva Villeurbanne](#), [Impact FM Lyon](#))

- Guest of the morning news at **BFM Lyon** ([BFM - Part 1](#), [BFM - Part 2](#))  
October 8, 2021
- **RFI** interview during the “Semaine de la Francophonie Scientifique” organized by the **AUF** in Romania ([Facebook Interview](#), [Live Facebook](#), [Instagram Interview](#))  
September 23, 2021
- “Concours Inria d’Idées Innovantes”, 2021 ([ENS Lyon](#), [LinkedIn](#))
- Radio Interview with the **Cameroon National Television** (CRTV) - For the NEC PhD fellowship I was awarded, 2021 ([LinkedIn](#), [Youtube](#))
- Video Interview with the **Cameroon National Television** (CRTV) - For the International Women Day 2021 ([LinkedIn](#), [Youtube](#))

## 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), singing (I use to record myself covering some known songs and post them on social medias), doing sport, and a little bit cycling around. I am having new interest for self-training in nail art.