

Bertrand TEGUIA TABUGUIA | Mathematician and Computer Scientist, Ph.D.

University of Kassel, Germany – Heinrich-Plett-Str. 40. 34132 Kassel

☎ +491521217745

✉ bteguia@mathematik.uni-kassel.de/bertrand.teguia@aims-cameroon.org

🌐 www.bertrandteguia.com • Cameroonian

Latest update: March 1, 2021

OTHER PERSONAL DATA

Date of Birth March 11, 1993

Family Status Single, without children

Country and Place of Birth Cameroon, Yaounde

EDUCATION

University of Kassel, Germany

Kassel

Ph.D. in Mathematics, Computer Algebra

August 2018 – May 2020

Power Series Representations of Hypergeometric Type and Non-Holonomic Functions in Computer Algebra, grade: distinction.

The thesis can be downloaded from the link <https://kobra.uni-kassel.de/handle/123456789/11598>.

AIMS-Cameroon

Limbe

Master in Mathematical Sciences

August 2017 – July 2018

Study pure and applied mathematics at AIMS (African Institute for Mathematical Sciences), Cameroon center.

Research essay in Computer Algebra: **Automatic Computation of Laurent-Puiseux Series of Hypergeometric Type**, grade: distinction.

AIMS Taught Master, final grade: distinction

ENSP Yaounde-Cameroon

Yaounde

Engineering in Mathematics and Computer Science

September 2011 – July 2016

Ecole Nationale Supérieure Polytechnique (ENSP), Departments: Mathematics and Physical Sciences, and Computer Engineering.

Master Thesis: **Classification Non Supervisée et Suivi des Processus de Dynamique Forestière**, grade: excellent (distinction).

Master in Computer Engineering, final grade: Good

Lycée de Mballa II

Yaounde

Baccalauréat C

September 2004 – July 2011

Secondary and High School.

EXPERIENCES

AIMS-Cameroon

Limbe

Teaching Assistant, Tutor

March 2019 – May 2019

Tutoring students in learning pure and applied mathematics.

AIMS-Cameroon

Essay phase

Limbe

April 2018 – May 2018

Computer Algebra with the Computer Algebra System (CAS) Maxima.

Developing a program able to compute the power series representation of an important subfamily of hypergeometric type functions.

H2Altitude

Developer in Computer Engineering

Yaounde

December 2016 – August 2017

Data flow management using Talend (which also uses Java programming), MySQL and a little NoSQL and Apache Kafka on AWS.

As the company develops web applications, we were constantly using the languages Javascript, HTML 5, CSS 3, and the chosen framework was Symfony 2.

Working on pressure.

CIRAD

Engineer Internship And Collaboration

Yaounde

February 2016 – October 2016

Understanding, modeling and implementing an algorithm that predict the dynamics of forest processes (birth, growth and mortality).

- Engineer Internship (6 months):
 - Probability and Statistics: General clustering and Expectation-Maximization (EM) algorithm;
 - Programming with R : Practical solution of the model obtained, simulation and perfect coincidence with the R package flexmix.
- Collaboration, voluntary work (2 months) with Prof. Vivien Rossi to improve the efficiency of the R program obtained at the end of the internship: algorithmic and programming, differential calculus, optimization

ENSP-Cameroon

Pre-engineer internship

Yaounde

July 2015 – September 2015

Symbolic computation with the Computer Algebra System (CAS) Singular.

Algorithmic and programming, field theory, Galois theory.

Intelligentsia Corporation

Mathematics teacher

Yaounde

Jun 2015 – July 2015

Teaching General Algebra, Real Analysis, and basic Topology in a class of 30-45 students to prepare entrance at universities.

SCHOLARSHIPS

DAAD Erasmus+ program

Researcher, University of Kassel, Germany

Kassel

June 2020 – December 2020

A stay in Germany used for a partnership between AIMS-Cameroon and the University of Kassel. This founding allows me to extend my stay in Germany to the end of 2020 for some research works resulting from my Ph.D. thesis.

DAAD Erasmus+ program

Ph.D. student, University of Kassel, Germany

Kassel

November 2019 – April 2020

A stay in Germany used for a partnership between AIMS-Cameroon and the University of Kassel. This founding allowed me to extend my stay in Germany to April 2020 for the completion of my Ph.D. thesis.

DAAD STIBET

Ph.D. student, University of Kassel, Germany

Kassel

November 2018 – January 2019

First stay in Germany for my Ph.D. work.

PERSONAL PAPERS

- Tegui Tabugui, Bertrand. **A variant of van Hoeij's algorithm to compute hypergeometric term solutions of holonomic recurrence equations.** *arXiv preprint arXiv:2012.11513*. December 2020 (submitted).
- Tegui Tabugui, Bertrand. **On 'Best' Rational Approximations to π and $\pi + e$.** *Preprints 2020*,

2020050268 (doi: 10.20944/preprints202005.0268.v2) (to review before attempting to publish).

- Tegui Tabuguia, Bertrand. **An Algorithmic Random-Integer Generator based on the Distribution of Prime Numbers.** *Research Journal of Mathematics and Computer Science*, 2019; 3:16. DOI: 10.28933/rjmcs-2019-06-1705.

COLLABORATIVE PAPERS

- Tegui Tabuguia, Bertrand and Wolfram Koepf. **Power series representations of hypergeometric type functions.** To appear at the Maple Conference 2020 Proceedings.
- Tegui Tabuguia, Bertrand and Wolfram Koepf. **Symbolic computation of hypergeometric type and non-holonomic power series.** *arXiv preprint arXiv:2102.04157*. February 2020 (submitted).

WORKSHOPS & CONFERENCES

Maple Conference 2020

Algorithm and Software presenter

Virtual

November 02 – 06, 2020

I am one of the presenters for the theme Algorithm and Software. In this presentation, I made the first public demonstration of the most important result of my Ph.D. thesis: *Power series representations of hypergeometric type functions*.

ICMS 2020

Software Demo presenter

Braunschweig

July 13 – 16, 2020

I was one of the software demo presenters. My algorithm, a variant of van Hoeij's algorithm, was accepted upon peer review.

Workshop on Applied Algebra

Poster presenter

Braunschweig

June 07 – 08, 2019

I was accepted to present a poster from my paper on randomness and the distribution of primes.

LANGUAGES

- **French:** Fluent *Native language*
- **English:** Good level *Main work language used since August 2017.*
- **German:** Basic *Level A1, Goethe Institute of Yaounde (10 September - 31 October 2018).
Currently doing A2.*

COMPUTER SKILLS

Very good computer and programming skills.

During my free time, last year I thought and developed the game called P&C Game, available on Google Playstore and at <https://bertrand-t3gu1.itch.io/pc-game>. A first version was done in Python, and a second using Javascript, CSS 3 and HTML 5. The latter was used to generate an apk-release for Google Playstore.

- **Maxima:** favorite Computer Algebra System (CAS), used since 2018.
- **Maple:** I am currently implementing my Ph.D. thesis algorithms in this CAS.
- **Sagemath:** main CAS used at AIMS-Cameroon.
- **R:** Used during my work in engineer internship (9 months).
- **Python:** used since 2016 for general programming: scientific computing, software development.
- **Most used web languages: HTML 5, CSS 3, Javascript, Php:** to develop web applications.
- **Java:** main programming language used for the three last years at ENSP Yaounde.
- **MySQL:** main system used for managing data bases at ENSP Yaounde.
- **Latex:** Used to produce pdf documents since 2014.

- **Other languages used in the past:** C, Prolog, Singular, UML (for design).
- **Operating System:** Linux, Windows.
- **Keyboard blind typing:** very good speed.

PERSONAL SKILLS

- **Fast learning:** Anything related to computer programming or mathematics is loved and quite easy to learn for me.
- **Perfectionist:** During my Ph.D. work, I always wanted my codes to have the best efficiency even though my supervisor was already satisfied.

VOLUNTEERING

Tutoring mathematics to a class of 10-15 students of the terminal C class at the Evangelical Church of Cameroon in the street Manguier of Yaoundé.

INTERESTS & HOBBIES

- **Computer programming:** Doing programming exercises in python from websites like Kattis, CodeChef.
- **Mathematics and their applications:** Computer Algebra, Number Theory, Advanced Statistics, Scientific Computing, Mathematical Modeling.
- **Movies, series:** Genius (Einstein), Irrational man, One Tree Hill, Numb3rs, Hannah Arendt, Jobs, X+Y.
- **Drawing:** Anything beautiful.
- **Singing:** Pop, R&B, like for The Fray, Gavin Degraw and James Arthur.
- **Dancing:** I have been a choreographer, I like harmonized dance.
- **Sport:** Football, my all time favorite players are in order Ronaldinho, Cristiano Ronaldo, Ronaldo and Samuel Eto'o.

REFERENCES

Prof. Dr. Wolfram Koepf

Professor in Computer Algebra, University of Kassel, Germany.

Ph.D. supervisor

Tel: +49 561 804 4207

Email: koepf@mathematik.uni-kassel.de

Prof. Dr. Marco Garuti

Academic Director of AIMS-Cameroon.

Professor in Algebraic Geometry, University of Padova, Italy and AIMS-Cameroon.

Tel:(+237) 696 27 87 62 / (+39) 340 748 1744

Email: marco@aims-cameroon.org

Dr. habil. Vivien Rossi

Biostatistician researcher, CIRAD (<https://www.cirad.fr>)

University of Yaounde I and ENSP de Yaoundé

Main supervisor of my essay at ENSP de Yaoundé

Email: vivien.rossi@cirad.fr

Prof. Dr. Werner Varnhorn

Center President of AIMS-Cameroon.

Professor in Partial Differential Equations, University of Kassel.

My lecturer for the PDE course at AIMS-Cameroon

Email: varnhorn-kassel@t-online.de/varnhorn@mathematik.uni-kassel.de