

Joseph Junior Penlap Tamagoua

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Education

University of Côte d'Azur (UCA), Nice, France

Ph.D., Automation, *Signal and Image Processing*,

September 2025

- Thesis: Ecophysiological modeling of plant-nematode interactions: Understanding the origins and consequences of differential plant susceptibility
- Advisors: Frédéric Grogard, Valentina Baldazzi, Suzanne Touzeau
- Affiliated with Inria and INRAE research centers

African Institute for Mathematical Sciences (AIMS), Limbe, Cameroon

M.sc., Mathematical Sciences, *Data Science*,

June 2022

- Master Thesis: Modeling the dynamics of a forest environment: role of water cycle
- Advisor: Nathalie Verdière

University of Dschang (UDs), Dschang, Cameroon

M.sc., Mathematics, *Analysis*,

June 2021

- Master Thesis: Spaces of locally uniformly bounded functions and applications
- Advisor: Jean Louis Woukeng

B.sc., Mathematics and computer science,

July 2019

Research Interests

Development of mathematical models in population dynamics

- Dynamical systems (ODEs, PDEs)
- Mathematical analysis (model reduction, stability analysis)
- Numerical simulation (calibration, parameter estimation, control strategies)

Main applications

- Automatic control (estimation, identification, regulation, optimal control)
- Agro-ecology engineering for plant health protection
- Biology mathematical modeling
- Biological control, crop protection

Employment History

Research Assistant,

Oct 2022-Sep 2025

Teams: Inria (**Macbes** unit) & INRAE (ISA/**M2P2** unit)

- Investigating pest impacts on plant development
- Conducting fieldwork and tests on laboratory
- Writing reports and journal articles

Assistant Faculty,

Jan 2022-Apr 2025

Department of Mathematics, University of Côte d'Azur

- Acting as teaching assistant
- Evaluating student's final projects

Research Intern,

Apr 2019-July 2021

URMA (Mathematics Research Unit), University of Dschang

Teaching Experience

Teaching Assistant, University of Côte d’Azur, Department of Mathematics

- Linear Algebra (SPUM11), semester 1 – Spring 2023
- Numerical Analysis (SLUMA603), semester 2 – Fall 2023, 2024

Sessional Instructor, University of Dschang, Department of Mathematics and computer science

- Statistics (STAT), semester 1 – Spring 2021

Selected Talks & Posters

1. Mathematical Population Dynamics, Ecology and Evolution (MPDEE), Marseille, France (4/2023). *Modeling plant-nematode interactions to understand plant tolerance.*
2. 14th Dynamical Systems Applied to Biology and Natural Sciences (DSABNS), Bilbao, Spain (2/2023). *Ecophysiological modeling plant-nematode interactions to understand plant tolerance.*
3. Biocore seminar on automatic control and dynamical systems theory to artificial ecosystems, Porquerolles island in Hyères, France (10/2023). *Some results in Agro-forestry.*
4. Contributed group talk, AIMS-Cameroon, Limbe, Cameroon (3/2022). *Epistatic interactions between sickle-cell disease and alpha-thalassemia.*

Skills

Qualities	Teamwork, Problem solver, Leadership.
Languages	French (mother language), English (professional language).
Software	Python, L ^A T _E X, SageMath, R, Berkeley Madonna, Matlab

Awards, Grants & Honours

INRAE-Inria PhD Fellowship , Inria centre at Université of Côte d’Azur	Oct 2022-Sept 2025
INRAE-Inria Travel Grant , To PhD student to attend and present a contributed talk at DSABNS & MPDEE conferences	Feb, Apr 2023
MasterCard Foundation Scholarship for studies at AIMS , African Institute for Mathematical Sciences	Sept 2021-July 2022
President Paul Biya’s academic excellence prize , Granted by the president of the Republic of Cameroon to the best students	Dec 2018-19-20-21
National winner prize OUC Africa ,	Dec 2018-19-20-21