Emmanuel Nyandu Kagarabi

Curriculum Vitae

Personal Information

First Name	Emmanuel
Last Name	Nyandu Kagarabi
Gender	Male
Nationality	Democratic Republic of Congo (DRC)
Address	6 Melrose Road, Muizenberg, 7945 Cape Town, South Africa
Mobile	+27 79 134 8250 /+243 971 319 133
Email	emmanuelnk@aims.ac.za, emmanuelnyandukagarabi@gmail.com
LinkedIn	Emmanuel Nyandu Kagarabi
GitHub	emmanuelnyandukagarabi

Education

January - November 2024

Master's in Mathematical Sciences with a specialisation in Artificial Intelligence for Science, *African Institute for Mathematical Sciences (AIMS)*, Cape Town, South Africa.
- Covering Machine Learning by Hand, Machine Learning at Scale, Computer Vision, Deep Learning, Natural Language Processing, Reinforcement Learning, and applications in Climate Science, Ecology, Epidemiology, Astronomy, and more, the program runs at the fascinating junction of artificial intelligence and the sciences.
- Here are all of the courses, and some of my presentations can be found here.
- Thesis: *AI-enhanced Classification and Early Detection of Dengue Lineages for Timely Public Health Response*: Under support from CERI, this study uses Machine Learning and Deep Learning techniques to classify Dengue genomic sequences into lineages efficiently. With over 100 million infections reported yearly, the outcomes seek to improve the genomic surveillance of the Dengue virus.

October 2016- November 2021

Bachelor's in Mathematics, *Institut Supérieur Pédagogique de Bukavu (ISP-BUKAVU)*, Bukavu, DRC.
- Including Algebra, Analysis, Geometry, Probability-Statistics, Operational Research, Physics, and more, this five-year program addressed a broad spectrum of subjects in both Pure and Applied Mathematics.
- Theses: *Processing of Numerical Tensors* and *Numerical Methods for Nonlinear Optimization*.
These projects introduced me to Nonlinear Optimisation and Numerical Analysis, where I implemented various optimization algorithms and developed mathematical foundations for numerical tensors (a generalisation of vectors and matrices).

Awards

January - November 2024

Google DeepMind Scholarship.
- This fully funded scholarship from Google DeepMind was awarded to the top forty African students to study the Artificial Intelligence Masters at AIMS South Africa.

April 24, 2021

Bourse d'Excellence Cimpunda (BEC).
- A scholarship recognising the best students in Bukavu City, DRC. Certificate.

Work Experience

September 2022 - December 2023

Part-time Teaching Assistant, *Université Officielle de Bukavu (UOB-BUKAVU)*, Bukavu, DRC.
- Taught Practical work in Linear Algebra and Analytical Geometry to first-year students in the Ecole des Mines Faculty. Also taught General Mathematics (Algebra and Analysis) to first-year students in the Sciences Appliquées Faculty (Geology, Biology, Environment, and Agronomy).

October 2022 - December 2023

Visiting Teaching Assistant, *Institut Supérieur d'Études Commerciales et Financières de Bukavu (ISECOF Bukavu)*, Bukavu, DRC.
- Taught General Mathematics to first-year students across various faculties (Financial Management, Business Management, Management and Administration, and Computer Science).

April - June 2022	**Visiting Teaching Assistant**, *Institut Supérieur Pédagogique de Bukavu (ISP-BUKAVU)*, Bukavu. • For third-year Chemistry-Physics students, instructed Mathematics for Chemists II.
October 2021 - December 2023	**Teacher**, *Institut du Groupe Scolaire MAENDELEO*, Bukavu. • Taught Mathematics and Physics in the Commercial Management, Social Sciences, and General Pedagogy sections.
December 2020 - January 2021	**Trainee**, *Société Nationale d'Électriciteé (SNEL)*, Bukavu. • Gained practical knowledge of hydroelectric power plant operations, specifically at the RUZIZI 1 plant. Certificate.
December 2020 - January 2021	**Trainee**, *Unité de Recherche et Enseignement de Mathématiques Appliquées (UREMA)*, ISP-BUKAVU. • Acquired insights into the functioning of a scientific research unit, focusing on Pure and Applied Mathematics.

Volunteer Experience

March 17 - 22, 2024	**Volunteer**, *African Institute of Mathematical Sciences (AIMS)*, Cape Town, South Africa. • Celebrating AIMS's 20th anniversary, volunteered at the SIYAKHULA (Growing Mathematics in Africa) festival. Certificate.

Workshops Attended

April 17 - 19, 2024	**Africa Scientifique Programme**. • A capacity-building programme for African researchers, and science communicators at AIMS South Africa. Certificate.
June 10 - 29, 2024	**Meaningful Modeling of Epidemiological Data (MMED) 2024**. • An intensive introduction to data-driven infectious disease modeling, with participants coming from across Africa and around the world, held at AIMS South Africa.

Skills

LaTeX	• Proficient in writing complex text, equations, and drawing figures.
Coding	• Proficient in Python and R.
Teaching	• Experienced in teaching both Applied and Pure Mathematics.
Artificial Intelligence	• Expertise in building and training Artificial Neural Networks in various AI sub-fields, with or without any fancy library, depending on the problem.

Languages

French	• **Fluent**
English	• **Proficient (CEFR B2)**
Kiswahili	• **Native Speaker**

References

- **Dr. Claire David**, *Academic Director of the AI for Science Masters programme at AIMS South Africa*.
  Mail : `claired@aims.ac.za`

- **Dr. Joicymara Xavier**, *Researcher at the Centre for Epidemic Response and Innovation (CERI), Stellenbosch University*, and my ongoing Masters thesis supervisor.
  Mail : `joicy.xavier7@gmail.com`

- **Dr. Justin Buhendwa Nyenyezi**, *Head of the Sciences Exactes Section and Lecturer in the Mathematics-Physics department at ISP-BUKAVU*, my Bachelor thesis supervisor.
  Contacts : +243 975 589 099 /851 216 456, `justinnyenyezi@gmail.com`

- **Dr. Simon Muya Kasanda**, *Director of the École des Mines faculty and lecturer at UOB-BUKAVU*.
  Contacts : +243 825 595 081, `simon.muya.kasanda@gmail.com`

- **Dr. Lucien Zihindula Biguru**, *Lecturer at UOB-BUKAVU and Université Catholique de Bukavu*.
  Contacts : +243 823 049 302, `zihindulabig@gmail.com`

Cape Town, 17 September, 2024
Emmanuel Nyandu Kagarabi