Jean Lucien Randrianantenaina

Mathematicians, AI Enthusiast

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Summary

I am an enthusiastic problem-solver with a deep passion for mathematics and computer science. I enjoy learning and tackling challenges that require me to apply my interpersonal skills and technical skill, as well as those that provide opportunities for personal growth. Moreover, I am always ready to face any challenges.

Educations

Stellenbosch University, South Africa — **Jan. 2024 – Nov. 2024**
MSc. in Machine Learning and Artificial Intelligence
Relevant courses: Mathematics for Machine Leaning, Foundation of deep Leaning, Computer Vision, Probabilistic Modelling, Natural Language Processing, Reinforcement Learning, Optimization for Machine Learning

Faculty of Science, University of Fianarantsoa, Madagascar — **Jun. 2019 – Jan. 2024**
MSc. in Mathematics and Applications – Fundamental Mathematics — Grade: 14.25/20
Relevant courses: Graph Theory, Artificial Intelligence, Numerical Analysis, Optimization, Distribution and PDEs, Stochastic Simulation, Combinatorics, Algebra

African Institute for Mathematical Science, Limbé Cameroon — **Sep. 2022 – Jun. 2023**
MSc. in Mathematical Sciences – Fundamental Sciences — Grade: 3.52/4
Relevant courses: Statistical Inference, Numerical Analysis with Python, Algebraic Geometry, Cryptography, Quantum information theory

Faculty of Science, University of Fianarantsoa, Madagascar — **Nov. 2015 – Apr. 2019**
BSc. in Mathematics and Application – Fundamental Mathematics — Grade: 14.83/20
Relevant courses: Linear Algebra, Algebra, Analysis, Algorithm, Probability, Statistics, Topology

Baccalaureate in Technology in Industrial Engineering — **Sep. 2012 – Jul. 2015**
Technical High School Beravina Fianarantsoa, Madagascar. — Grade: 13.08/20
Relevant courses: Automation, Material resistance, Industrial draw

Publication and Talks

Florian Luca and Jean Lucien Randrianantenaina,"There Is No Carmichael Number of the Form $2^n p^2 + 1$ with p prime", INTEGER, Volume 23 (2023).

Talk at AIMS Cameroon, 2023: "Fermat last theorem, with n=4" Presented to AIMS Cameroon students. Supervised by Prof. Dr Hans Georg Rück, Universität Kassel.

Research Experiences

Optimizing U-net architecture for brain tumour segmentation, using Genetic Algorithm (Msc. Thesis) — **2023**
Proposed and implemented a genetic algorithm approach to optimize hyperparameters of the U-net architecture for improved brain tumour segmentation accuracy.
Supervisor: Dr Aurelle Tchagna Kuanou (U. of Buea Cameroon) and Dr Joelson Randriamparany (U. Fianarantsoa)

Carmichael Number (Msc. Thesis) — **2023**
Investigated the properties of Carmichael Numbers and proved the non-existence of a Carmichael Number of the forms $2^n p + 1$, with p prime.
Supervisor: Prof. Florian Luca (U. of Wits, South Africa)

Radical resolution of a polynomial Equation (BSc. Project) — **2019**
Exporation of radical resolution method and explaining why there is no general formula to solve a polynomial equation of degree higher than five.
Supervisor: Prof. Solo Randriamahaleo (U. of Fianarantsoa)

Skills

Programming
- Python
- JavaScript/NodeJs
- HTML
- CSS/SASS
- LaTeX

Library/Framework/Versioning
Numpy, PyTorch, Tensorflow, Pandas, Scikit-Learn, Matplotlib, Django, Flask, Bootstrap, Git

Language
- English
- French
- Malagasy

Projects

Movie Recommender System **Feb. 2024**
Large-scale recommender system, using probabilistic matrix factorization and trained on the 25M MovieLens dataset

MK-Forum **2023**
Creation of a forum dedicated to mathematics, using HTML, CSS/Bootstrap, and JS for the front end, and Python/Django and MySQL for the back end. The project includes user account management, posts, comments, and a voting system.

FCryptos **2023**
Implementation of various cryptographic systems using Python, like Shift cypher, Vingenere cypher, SPN, RSA, and ENIGMA machine.

Unbeatable TicTacToe **2022**
Implementaion of the Tic-Tac-Toe game using HTML, CSS and JavaScript. It has an automated computer player that uses a combination of random placement and min-max algorithm to make each move depending on the chosen level.

Pendu Malagasy **2022**
Implementation of the hangman game using Tkinter an Python. The list of words is Malagasy by default but can be changed easily.

Bellman Kalaba GUI **2021**
Implemention of a graphical interface for graph representation and short-path finder with the Bellman-Kalaba algorithm with Tkinter/Python.

Certifications

Business Management **Jully 2023**
ESMT Berlin, II Africa, IIP – Limbé, Cameroon
One moth of intensive course for Business managements, and soft skills developements.

Back-end developer **Jan. – Aug. 2022**
SAYNA & OIF: DCLIC Program 1.0 – Fianarantsoa, Madagascar
Six months course of website developpents: HTML5, CSS3, JavaScript, NodeJs, MySQL.

Prizes/Awards/Scholarships

Fully funded Master's Program in ML and AI: DeepMind Scholarship. **2024**

Industry Immersion Program (IIP) Scholarship: AIMS; II Africa; ESMT Berlin Germany. **2023**

Fully Funded Master's Program, AIMS Cameroon: Mastercard Foundation. **2022**

Fully Funded D-CLIC 1.0 Programs: SAYNA the Organisation International et de la Francophonie (OIF). **2022**

References

- Prof. Florian Luca, School of Mathematics.
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