

ARISTIDE TANYI-JONG AKEM

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SUMMARY

PhD student with skills in P4 programming, data analytics, machine learning and mobile networks. Interested in research topics at the interface between data science and mobile networking. Currently working on implementing machine learning models in P4-programmable switches for data-driven management of networks. Current use cases are in security and traffic classification in IoT networks.

EDUCATION

Universidad Carlos III de Madrid

March 2021 - Present

Doctor of Philosophy (PhD) in Telematics Engineering

Research Area: Data-Driven Management of Mobile Networks

Carnegie Mellon University

August 2019 - May 2020

Master of Science (MS) in Electrical and Computer Engineering

Concentration: Network Technologies

Research Topic: Exploiting Temporal Traffic Variations to Enhance Energy Savings Using Sleep Mode: A Machine Learning Approach

University of Yaounde I

September 2013 - July 2018

Master of Engineering (MEng) in Telecommunications

Final Project: Design of a Mobile Video Surveillance Value-Added Service via the 4G LTE Network of Cameroon Telecommunications.

PUBLICATIONS

Michele Gucciardo, **Aristide Tanyi-Jong Akem**, Beyza Büttün and Marco Fiore, “**Demonstrating Flow-Level In-Switch Inference**,” (Demo) *2023 IEEE International Conference on Computer Communications (IEEE INFOCOM 2023)*, New York, NY, USA, 17-20 May 2023. (SUBMITTED)

Beyza Büttün, **Aristide Tanyi-Jong Akem**, Michele Gucciardo and Marco Fiore, “**Fast Detection of Cyberattacks on the Metaverse through User-plane Inference**,” *IEEE International Conference on Metaverse Computing, Networking and Applications (IEEE MetaCom 2023)*, June 26-28, 2023, Kyoto, Japan. (SUBMITTED)

Aristide Tanyi-Jong Akem, Michele Gucciardo and Marco Fiore, “**Flowrest: Practical Flow-Level Inference in Programmable Switches with Random Forests**,” *2023 IEEE International Conference on Computer Communications (IEEE INFOCOM 2023)*, New York, NY, USA, 17-20 May 2023. (ACCEPTED)

Aristide Tanyi-Jong Akem, Beyza Büttün, Michele Gucciardo, and Marco Fiore, “**Henna: Hierarchical Machine Learning Inference in Programmable Switches**,” *In Native Network Intelligence (NativeNI '22)*, December 9, 2022, Roma, Italy. ACM, New York, NY, USA, 7 pages. [Paper]

Aristide T-J. Akem and Edwin Mugume, “**A Machine Learning Approach to Temporal Traffic-Aware Energy-Efficient Cellular Networks**,” *2020 11th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*, Virtual Conference, Formerly New York, NY, USA, 28-31 Oct. 2020). [Paper]

WORK EXPERIENCE

University of Cambridge, United Kingdom

October 2022 - Present

Visiting Student

Visiting the Computer Science and Technology Department under the supervision of Dr. Ian Wassell.

Ranplan Wireless, United Kingdom

October 2022 - Present

Visiting Researcher

Visiting the company as part of the secondments of the Marie Skłodowska-Curie ITN "BANYAN".

IMDEA Networks Institute, Spain

March 2021 - Present

Pre-Doctoral Researcher

Marie Skłodowska-Curie ITN Fellow working on implementing machine learning algorithms in P4-programmable switches for online inference at line rate.

Carnegie Mellon University Africa, Rwanda

September 2020 - March 2021

Graduate Teaching Assistant

Served in three graduate courses: Data Inference and Applied Machine Learning, Data Analytics, and Big Data Science. Graded assignments, held office hours with students, and handled course logistics.

Ministry of ICT and Innovation, Rwanda

May 2020 - August 2020

Data Science Intern

Data extraction, cleansing, wrangling, visualization, and analysis, using Python, to generate insights that facilitate the decision-making process.

Huawei Technologies Company Cameroon Limited, Cameroon

January 2019 - July 2019

Intelligent Video Surveillance Engineer

Was part of the team that installed, configured and commissioned 351 street video surveillance camera sites in the city of Yaounde, under the Safe City Project of the National Police.

OMEGA Learning Centre Secondary School, Cameroon

September 2018 - May 2019

Mathematics Instructor

Prepared and delivered Mathematics lessons to students, producing excellent results. Full-time from September 2018 to January 2019 and then part time from January to May 2019.

Cameroon Telecommunications (CAMTEL), Cameroon

February 2018 - June 2018

Radio Access Network Engineer Intern

Designed a mobile video surveillance value-added service, dubbed CAMTEL4GSURV, over the 4G LTE access network of CAMTEL with two web applications to provide CCTV services to clients.

Orange Cameroon S.A., Cameroon

July 2017 - September 2017

Transmission Engineer Intern

Updated the microwave link database of the backhaul transport network of the telecom operator, comprising 1731 links, and redesigned the architecture of the backhaul transport network.

LANGUAGES

English	Fluent
French	Fluent
Spanish	Beginner

TECHNICAL STRENGTHS

Network Programming	P4 on BMv2 & Tofino
Data Analytics	Python and MATLAB
Computer languages	Linux, C and Python
Web application tools	HTML5, CSS3, PHP, Python, and WordPress
Database management	MySQL
Signal Processing	MATLAB
Antennas and Waves	Agilent ADS
Microwave Circuits	HFSS
Microsoft Office	Word, Excel and PowerPoint
LaTeX	Overleaf and Texmaker
Intelligent Video Surveillance Systems	Configuration and Maintenance (Huawei IVS)

REFERENCES

Marco Fiore, Ph.D.

Research Professor, IMDEA Networks Institute,
Av. Mar Mediterráneo, 22, 28918 Leganés, Madrid, Spain.
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Martin Saint, Ph.D.

Director of Academics, Carnegie Mellon University Africa,
Kigali Innovation City, BP 6150, Kigali, Rwanda.
msaint@andrew.cmu.edu

Edwin Mugume, Ph.D.

Instructor, Carnegie Mellon University Africa,
Kigali Innovation City, BP 6150, Kigali, Rwanda.
emugume@andrew.cmu.edu

ACHIEVEMENTS AND AWARDS

Marie Skłodowska-Curie ITN Fellow, 2021 - Present.

Carnegie Institute of Technology Dean's Fellow, 2019 & 2020.

Best Speaker, International Speech Contest of the TechyTalkers Toastmasters Club, 2019.

Student Speaker, Semester kick-off dinner for Fall 2019 at Carnegie Mellon University Africa.

National Best, Fifth continental essay competition on normalization organized by ARSO, 2018.

Class delegate for two years at the University of Yaounde I, Cameroon, 2014 & 2015.

2-time Les Brasseries du Cameroon Academic Excellence Award winner, 2011 & 2013.

Express Union S.A. Academic Excellence Award winner, 2013.

Member of the 12th session of the Cameroon Children Parliament, 2010.