

# Lukman Enegi ISMAILA

DOCTORAL RESEARCHER IN MACHINE LEARNING

Polytech Angers, Laris Laboratory

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## Education

### Ph.D Computer Science - Signals, Images, Vision (In-View)

Angers, France

UNIVERSITY OF ANGERS (UA)

Sept 2020 - Aug 2023

- Thesis: Machine Learning Applications in Neurosurgical Procedure for Brain Tumor Removal
- Advisor: Professor David Rousseau

### MSc. Computer Science

Abuja, Nigeria

AFRICAN UNIVERSITY OF SCIENCE & TECHNOLOGY (AUST)

July 2016 - Dec 2017

- Thesis: Facial Expression Recognition for Adaptive Learning Environment
- Ranked top 5% among graduating students
- Advisor: Professor Mohamed Hamada (University of Aizu, Japan)

### MSc. Computer Science

Abuja, Nigeria

NILE UNIVERSITY OF NIGERIA (NUN)

Nov 2015 - July 2017

- Thesis: Medical Expert System for Differential Disease Diagnosis
- Ranked top 2% among graduating students
- Advisor: Professor Nwojo Agwu Nnanna

### BSc. Computer Science

Abuja, Nigeria

NILE UNIVERSITY OF NIGERIA (NUN)

Sept 2011 - June 2015

- Thesis: Mobile Based Election Result Transmission and Collation System
- Ranked top 2% among graduating students
- Advisor: Professor Steve A. Adeshina

## Experience

### Doctoral Researcher | School of Engineering, Angers

Polytech Angers, France

LARIS LABORATORY, UNIVERSITY OF ANGERS

Sept 2020 - Aug 2023

- Conceptualize research ideas to address problems in neurosurgical planning for brain tumor removal using advance machine learning techniques in collaboration with researcher at Department of Neurosurgery, Central University Hospital (CHU) Angers.
- Design machine learning models for automatic recognition of functional brain networks using spatial and temporal resting state functional magnetic resonance imaging (rs-fMRI) data from healthy control subjects and unhealthy patients.
- Design and implement machine learning models using graph representation leaning approach.

### Mobile Application Engineer | ITC Systems Global Limited

[Remote]

FULL STACK APPLICATION DEVELOPER

Aug 2020

- Design mobile application for Point-of-Sale Terminal and Mobile devices
- Organize periodic maintenance and test on Implemented applications
- Monitor and resolve software issue on all devices in the hands of agent
- Collaborate with UI/UX team to implement ideas to satisfy customer demands

### Lecturer - Computer Science | Alumni Coordinator

NUN, Abuja

NILE UNIVERSITY OF NIGERIA (NUN)

May 2017 - Aug 2020

- Teach theoretical and practical concepts of computer science for undergraduate level students.
- Engage in research activities with department professors
- Supervise final year students projects

### Instructor | ICT Capacity Building

Brussels, Belgium

INTERNATIONAL CONSULTING EXPERTISE (ICE) | ICE EEIG

March 2019 - April 2019

- Design Curriculum for ICT Capacity Building
- Train Staff of the Ministry of Information & other agencies under the SUFEGOR programme

### Software Programmer | ICT - Department

NUN, Abuja

NILE UNIVERSITY OF NIGERIA (NUN) | ICT - DEPARTMENT

Sept. 2015 - July 2016

- Design and maintenance of school website, software development

## Database Analyst | Consultant

INDEPENDENT NATIONAL ELECTORAL COMMISSION (INEC) | ICT - DEPARTMENT

- Software Maintenance & Database Consultant

INEC, Nigeria

Nov. 2015 - Date

## Volunteer Experience

### Lead Machine Learning (ML) Engineer | Project Manager

Omdena, USA

PROJECTS

Nov 2020 - Present

- ★ Credit Scoring for Making Food Affordable to the Millions of Underserved in Africa (Sept, 2022) **(Role: Project Manager)**
- ★ Violence Detection Between Children and Caregivers Using Computer Vision (April, 2022) **(Role: Lead ML Engineer)**
- ★ Helping the Energy Industry Achieve Digital Transformation Through AI (Aug 2021) **(Role: Lead ML Engineer)**
- ★ AI for Energy: Transitioning towards a sustainable Energy System in Nigeria (Aug 2021) **(Role: ML Engineer)**
- ★ Improving Food Security and Crop Yield in Senegal (Feb 2021) **(Role: ML Engineer)**

#### Responsibilities & Goals

- Design adaptive machine learning model for 5 level credit scoring algorithms for food subscription
- Annotation, detection, interaction filtering and violence detection between child-caregiver and elderly-caregiver
- Mobile Application development for crop disease detection using Machine Learning
- Tensorflow Lite Machine Learning Model
- Front-End Web Development
- Machine Learning Model to identify high/moderate to low populated areas without adequate electricity and to decide the most suitable for solar panel installation
- Automatic generation of Smart P&IDs from images/PDF

### Computer Vision Researcher at CV4Africa

Remote

Sept 2022 - Present

- Provide technical explanation to all members on state-of-the-art techniques in high impact journals and conferences
- Conduct review on computer vision research using pan-African dataset
- collaborate on teach research project in complex machine learning techniques

### Omdena-Paris Chapter Lead

Remote

OMDENA COMMUNITY

Aug 2022 - Present

- Create AI project proposals from identified problem in the society
- Coordinate project activities and onboard participants
- Establish collaboration with companies and industries to collect dataset and raise impact potential

### Technical Assistant

Angers, France

ENGLISH LIBRARY OF ANGERS

June 2022 - Present

- Design and maintenance of volunteer management system
- General library support and coordination.

### Programming Instructor for Kids & Adults

Abuja, Nigeria

VOLUNTEER EXPERIENCE

July, 2015 - Nov 2018

- STEM Boot camp Instructor - WAAW Foundation, Edu-Teens Science Development Foundation, Codes2Schools
- Basic Programming Boot camp for Mobile and Web application development
- Instructor, curriculum and program designer for MIT App Inventor and Scratch
- Volunteer at Google CS-First programs which involves teaching young students how to code.
- Instructor of scratch programming language at various secondary schools in Abuja.
- Google CS4HS: Instructor of MIT-App inventor for secondary school teachers across abuja.

### Web Developer

Remote

UNITED NATIONS (UN) VOLUNTEERS

Aug 2021 - Present

- Responsive website development for humanitarian organization
- Website maintenance/evaluation and Upgrade for SEO softwares

### Program Coordinator

Abuja, Nigeria

IEEE NIGERIAN SECTIONS

June 2016 - Sept 2020

- Supervise data science projects
- Provide direction, resources and advice on technical issues from students

## Professional Training & Certifications

### Google Project Management

[Verification Link](#)

COURSERA PROFESSIONAL CERTIFICATE

December, 2022

- Foundations of Project Management, Project Initiation: Starting a Successful Project, Project Planning: Putting It All Together, Project Execution: Running the Project, Agile Project Management, Capstone: Applying Project Management in the Real World.

### Cloud DevOps Engineer Nanodegree

[Verification Link](#)

UDACITY NANODEGREE PROGRAM

August, 2022

- Operationalize infrastructure at scale and deliver applications and services at high velocity.
- Design and deploy infrastructure as code, build and monitor CI/CD pipelines for different deployment strategies, and deploy scalable microservices using Kubernetes

### Strategic Leadership and Management Specialization

[Certificate ID: 86LVSKU7L49Y](#)

STANFORD UNIVERSITY (ONLINE) COURSERA COURSE

Nov, 2020

- Managing the Organization, Designing the Organization, Corporate Strategy, Business Strategy, Strategic Leadership and Management Capstone, Foundations of Everyday Leadership, Applications of Everyday Leadership.

### Data Science Technologist

[IBM Skills Academy](#)

THEORETICAL & PRACTICAL TRAINING | MASTERY AWARD EXAM

April 2018

- Intensive Theoretical and Practical sessions with IBM Big Insight
- Demonstrated advanced proficiency on topics such as Apache Hadoop, Ambari, Spark, Big SQL, HDFS, YARN, MapReduce, ZooKeeper, Knox, Sqoop, and HBase.

### Machine Learning

[Stanford University \(Online\)](#)

COURSERA COURSE

Jan, 2019

- Courses Includes: Linear Regression, Logistical Regression, Principal Component Analysis, Support Vector Machine.
- Build ML models with NumPy & scikit-learn, build & train supervised models for prediction & binary classification tasks (linear, logistic regression).

## Teaching Experience

### Angevine School of Engineering (ESAIP)

[Angers, France](#)

VISITING LECTURER

Oct 2021 - Present

- Teaching mathematical real Analysis topics for first year engineering students
- **Topics:** Set theory, limits and continuity of functions, differentiation of functions, applications of the derivative, integration of functions, double integrals, triple integrals, line integrals and surface integrals.

### Nile University of Nigeria

[Abuja, Nigeria](#)

COMPUTER SCIENCE LECTURER

July 2017 - Oct 2020

- Teaching theoretical and practical courses in computer science department
- **Topics:** Algorithms and data structures, computer architecture, numerical analysis, computer databases, mobile & web application programming.

## Honors & Awards

### ACADEMIC/PROFESSIONAL

Oct 2022 -	<b>The Datasphere Initiative Fellowship</b> , Research on medical data policy for scientific purposes in	<a href="#">Datasphere Initiative Geneva, Switzerland.</a>
Oct 2023	Africa	
June 2020 - 2023	<b>Petroleum Technology Development Fund(PTDF) Scholarship</b> , Doctoral Study in France	<a href="#">Angers, France</a>
2016	<b>African Development Bank (AfDB) Scholarship</b> , Masters Scholarship in Computer Science	<a href="#">Abuja, Nigeria</a>
2015	<b>3rd Overall Best</b> , Graduating Students of Class 2015	<a href="#">NUN, Abuja</a>
2015	<b>2nd Best</b> , Graduating Students of Computer Science	<a href="#">NUN, Abuja</a>

### EXTRACURRICULAR

2016, 2017 & 2018	<b>Award of Excellence</b> , Software for Student Representative Counsel Election	<a href="#">Nile University</a>
2016	<b>Program Facilitator</b> , STEM Boot-camp program by WAAW Foundation	<a href="#">WAAW Foundation</a>
2015	<b>2nd Place</b> , VC-Cup Football Tournament	<a href="#">NUN, Abuja</a>
July 2018	<b>3rd Place</b> , NUN Alumni Reunion Marathon	<a href="#">NUN, Abuja</a>

## Selected Publications

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### INTERNATIONAL JOURNALS/CONFERENCE PUBLICATIONS

**Lukman E. Ismaila, Pejman Rasti, Jean-Michel Lemee and David Rousseau: “Self-Supervised Learning for Functional Brain Networks Identification in fMRI from Healthy to Unhealthy Patients”**

*SITIS 2022 Conference*

16<sup>th</sup> INTERNATIONAL CONFERENCE ON SIGNAL-IMAGE TECHNOLOGY & INTERNET-BASED SYSTEMS (SITIS)

Oct. 2022

• doi: 10.1109/SITIS57111.2022.00061

**Lukman E. Ismaila, Pejman Rasti, Florian Bernard , Mathieu Labriffe, Philippe Menei, Aram Ter Minassian, David Rousseau, and Jean-Michel Lemée: “Transfer Learning from Healthy to Unhealthy Patients for the Automated Classification of Functional Brain Networks in fMRI”**

*MDPI Applied Sciences*

JOURNAL

July. 2022

• doi: 10.3390/app12146925

**Lukman E. Ismaila, Pejman Rasti, Jean-Michel Lemee and David Rousseau: “Deep Learning Pour La Classification Automatique de Réseaux Cérébraux Fonctionnels Par Irmf de Repos”**

*Journal of Neuroradiology*

CONFERENCE PROCEEDING

March. 2022

• doi: <https://doi.org/10.1016/j.neurad.2022.01.017>

**Falalu. I. Lawan, Lukman E. Ismaila, Steve A. Adeshina; Habib I. Muhammed; Lehel Csato: “Deep Learning Methods for Filter Extraction in Tomato fruits”**

*IEEE Conference - 2019 15th*

*(ICECCO)*

CONFERENCE

Dec. 2019

• doi: 10.1109/ICECCO48375.2019.9043283

**Fauwzziyyah O. Umar, Lukman E. Ismaila and Ibrahim A. Umar: “The Prospect and Significance of Lifeline: An E-blood bank System”**

*IEEE Conference - 2019 15th*

*(ICECCO)*

CONFERENCE

Dec. 2019

• doi: 10.1109/ICECCO48375.2019.9043193

**Lukman E. Ismaila, Mohamed Hamada and Steve A. Adeshina: “Adaptive Multimedia Learning Framework with Facial Recognition System”**

*IEEE Conference - (ICECCO-2017)*

CONFERENCE

Abuja, Dec 2017

• doi: 10.1109/ICECCO.2017.8333315

**Lukman E. Ismaila, Isa M. Ismail and Nwojo N. Agwu: “Relevance of User Data Completeness in Resolving Differential Diagnosis in Medical Expert System”**

*IEEE Conference - (ICECCO-2018)*

CONFERENCE

Kazakhstan, Nov. 2018

• doi: 10.1109/ICECCO.2018.8634683

**Nafisah Munir, Lukman E. Ismaila and Steve A. Adeshina: “Decentralized Wireless Communication Using WI-FI in Battlefield Combat Identification System Optimization”**

*IEEE Conference - (ICECCO-2018)*

CONFERENCE

Kazakhstan, Nov. 2018

• doi: 10.1109/ICECCO.2018.8634802

**Lukman E. Ismaila, Steve A. Adeshina and Adegboyega Ojo: “Local and Global Election Result collation & Transmission System**

*IEEE Conference - (ICECCO-2017)*

CONFERENCE

Abuja, Dec 2017

• doi: 10.1109/ICECCO.2017.8333318

## Program Committee

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Dec. 2019	<b>International Conference on Electronics, Computer and Computation (ICECCO 2019)</b> , Research Proceeding Editor	Abuja, Nigeria
Aug. 2019	<b>IEEE PES-IAS Power Africa conference 2019</b> , Editor, Webmaster and Volunteer in IEEE Smart Village Events	Abuja, Nigeria
Dec. 2017	<b>Nigerian Private University Games Association (NPUGA 2017)</b> , Head, Accreditation Team	NUN
Nov. 2017	<b>International Conference on Electronics, Computer and Computation (ICECCO 2017)</b> , Member, Local Organizing Committee, Proceeding Editor	NUN
Sept. 2017	<b>IEEE ASYPC 2017</b> , Young Professional Attendee, Member, Organizing Committee	Baze University, Abuja
2015 & 2017	<b>ICECCO Conference</b> , Proceeding Editor, Printing Certificates & Tags	NUN, Abuja

## Technical Skills and Expertise

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(Acquired expertise from academic, professional and industrial experience).

### Programming

- C/C++, Python, Java, Kotlin, R, JavaScript, MySQL, Prolog and LaTeX.

### Applications & Libraries

- MATLAB, ImageJ, MRICroGL, TensorFlow, Scikit Learn, Keras, PyTorch, Anaconda, R-Studio, Spyder IDE, Deep Graph Library (DGL), PyTorch Geometric, Amazon Web Services (AWS), LabView, Hadoop, Spark, OpenStack, CircleCI, Ansible, Docker, Kubernetes, Streamlit, Android Studio and Postman.

### Mathematics

- Strong engineering mathematics background, Foundation of industrial mathematics and advance calculus, numerical analysis, Differential equation, Probabilistic and statistical modeling, Number Theory and Geometry.

### Machine Learning

- Medical dataset preprocessing, exploratory data analysis, Predictive modeling, Time Series Modeling, Statistical modeling problems, Supervised learning (Classification, Regression, dimensional reduction, structured prediction), Self-Supervised Learning, Unsupervised learning (Clustering-hierarchical clustering), (Anomaly Detection-Local Outlier factor), Incremental clustering of large database and Reinforcement Learning.

## References

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### Prof. David Rousseau

HEAD, IMHORPHEN BIOIMAGING RESEARCH GROUP

- Doctoral research director

Université d'Angers

david.rousseau@univ-angers.fr

### Dr. Pejman Rasti

ASSOCIATE PROFESSOR IN MACHINE LEARNING RESEARCH

- Doctoral research co-director

Angevine School of Engineering  
(ESAIP)

pejmanrasti@gmail.com

### Prof. Mohamed Hamada

SENIOR RESEARCHER, SOFTWARE ENGINEERING LAB

- Visiting Professor at African University of Science & Technology
- Master thesis research advisor & lecturer

University of Aizu, Japan

mhamada2000@gmail.com