

# 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 techniques to address problems in neurosurgical planning for brain tumor removal using advance machine learning techniques in collaboration with Central University Hospital (CHU) Angers.
- Design machine learning models for automatic recognition of functional brain networks using spatial and temporal 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 Africa	<a href="#">Datasphere Initiative Geneva, Switzerland.</a>
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)  
• doi: 10.1109/SITIS57111.2022.00061

Oct. 2022

**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  
• doi: 10.3390/app12146925

July. 2022

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

March. 2022

**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  
• doi: 10.1109/ICECCO48375.2019.9043283

Dec. 2019

**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  
• doi: 10.1109/ICECCO48375.2019.9043193

Dec. 2019

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

*IEEE Conference - (ICECCO-2017)*

CONFERENCE  
• doi: 10.1109/ICECCO.2017.8333315

Abuja, Dec 2017

**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  
• doi: 10.1109/ICECCO.2018.8634683

Kazakhstan, Nov. 2018

**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  
• doi: 10.1109/ICECCO.2018.8634802

Kazakhstan, Nov. 2018

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

*IEEE Conference - (ICECCO-2017)*

CONFERENCE  
• doi: 10.1109/ICECCO.2017.8333318

Abuja, Dec 2017

## Program Committee

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

## 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*