

Kenneth EZUKWOKE, Ph.D

PERSONAL INFORMATION

Kenneth EZUKWOKE, Ph.D
Data Scientist- GenAI | LLM | Agent, Datategy
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🔍 GoogleScholar 📄 Researchgate 🌐 github.com/kennedyCzar
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PROFESSIONAL SUMMARY

I am a Data Scientist (GENAI | LLM | AGENT) at Datategy, where I contribute to the development of the papAI-GenAI product. In this role, I am also actively engaged in computer vision projects, including OPTICAL CHARACTER RECOGNITION (OCR) and 2D-3D POSE ESTIMATION. Prior to this, I earned a Ph.D. in Applied Mathematics - GenAI and Industrial Engineering from École Nationale Supérieure des Mines de Saint-Étienne (EMSE), where my research focused on Artificial Intelligence for Failure Analysis in Semiconductor Industry 4.0. This was part of an industrial collaboration with STMicroelectronics, Bosch, and Infineon AG, under the FA4.0 EURIPIDES²-PENTA project.

In addition to my current role, I serve as a visiting lecturer at EMSE, delivering lectures on BIG DATA, NATURAL LANGUAGE PROCESSING (NLP), and LARGE LANGUAGE MODELS (LLM) to third-year engineering students enrolled in the ICM (INGÉNIEUR CIVIL DES MINES) programme.

AWARDS



- 🏆 **CIFAR Inclusive AI Scholarship**, Toronto, Canada, 2024
Deep Learning and Reinforcement Learning Summer School, hosted by the Vector Institute in collaboration with the Canadian Institute for Advanced Research (CIFAR)
- 🏆 **Top 10 of 100+ teams**, AIRBUS Anomaly detection challenge, 2020
Top 10 of 100+ teams across France in the AIRBUS anomaly detection challenge. Modeling using Variational Autoencoder and Desity based clustering.
- 🏆 **Summer Grant**, ACM SIGCHI Summer Grant, 2019
ACM SIGCHI Summer Grant Recipient ACM Summer Grant. Summer school held in Barcelona, Spain, focused on user modeling and personalization in urban computing.
- 🏆 **STUDENT RESEARCH GRANT**, UCL QATAR, 2018-2019
Student research grant awarded by UCL QATAR on data management system for UCL Qatar student-led event.
- 🏆 **FIRST CLASS DISTINCTION**, VISTAS, 2017
Annual convocation ceremony Vels University.

EDUCATION



Ph.D in Applied Math./Generative AI
École des Mines de Saint-Étienne (EMSE)

📍 Saint-Étienne, France
Oct. 2020 - Sept. 2023

- PhD candidate in Applied Math. / A.I, Researching GenAI for Failure Analysis FA4.0 EU Project
- An EU collaboration between EMSE, STMicroelectronics and Infineon Technologies AG with the objective of developing an AI-based solution for fault analysis in Microelectronics manufacturing industries of the future.

M.Sc. Machine Learning and Data Mining [Bien (Good)]
Université Jean Monnet (UJM) - Membre de l'Université de Lyon

📍 Saint-Étienne, France
Sept. 2019 - Aug. 2020

- Dual masters degree [MLDM] provides an original scientific position in Europe on problems related to machine learning, big data, pattern recognition, advance machine learning and advance AI.

B.Sc. Computer Application [Distinction]
Vels Institute of Science Technology and Advance Studies (VISTAS)

📍 Chennai, India
June 2014 - May 2017

- Bachelors focusing on Statistics, Calculus, Algorithms and Data structure, software/Application development. Final Thesis on designing a CRM application for student monitoring.

ONLINE EDUCATION



Foundations of machine learning - MEHRYAR MOHRI
New York University (Courant Institute and Google Research online)

2018

- Regression, Convex optimization, kernel methods, Multi-class classification, Boosting, Reinforcement learning, Online learning, learning with finite and infinite hypothesis.



Machine learning for financial trading
Georgia Tech University

2017

PUBLICATIONS



ACCEPTED

UNDER PEER-REVIEW

PROFESSIONAL EXPERIENCES



- K. Ezukwoke, H. Toubakh, A. Hoayek, M. Batton-Hubert, X. Boucher and P. Gounet, "Intelligent Fault Analysis Decision Flow in Semiconductor Industry 4.0 Using Natural Language Processing with Deep Clustering," *2021 IEEE 17th International Conference on Automation Science and Engineering (CASE)*, 2021, pp. 429-436, doi : [10.1109/CASE49439.2021.9551492](https://doi.org/10.1109/CASE49439.2021.9551492) .
- K. Ezukwoke, A. Hoayek, M. Batton-Hubert and X. Boucher, "GCVAE : Generalized-Controllable Variational AutoEncoder," *arXiv*, 2022, doi : [10.48550/ARXIV.2206.04225](https://doi.org/10.48550/ARXIV.2206.04225).
- Z. Wang, K. Ezukwoke, A. Hoayek, M. Batton-Hubert and X. Boucher, "NLP based on GCVAE for intelligent Fault Analysis in Semiconductor industry," *IEEE International Conference on Emerging Technologies and Factory Automation (ETFA-2022)*, doi : [10.1109/ETFA52439.2022.9921524](https://doi.org/10.1109/ETFA52439.2022.9921524).
- Ezukwoke, K., Hoayek, A., Batton-Hubert, M., Boucher, X., Gounet, P., and Adrian, J. (2022). Leveraging Pre-trained Models for Failure Analysis Triplets Generation. *arXiv*, doi : [10.48550/arXiv.2210.17497](https://doi.org/10.48550/arXiv.2210.17497).
- A. Rammal, K. Ezukwoke, A. Hoayek and M. Batton-Hubert, "Root cause prediction for failures in semiconductor industry, a genetic algorithm-machine learning approach," *Scientific Reports* 13(1), 4934, doi : [10.1038/s41598-023-30769-8](https://doi.org/10.1038/s41598-023-30769-8).
- K. Ezukwoke, A. Hoayek, M. Batton-Hubert, X. Boucher and P. Gounet, "Big GCVAE : Decision-Making with Adaptive Transformer Model for Failure Root Cause Analysis in Semiconductor Industry *Journal of Intelligent Manufacturing (JIM)*, doi : [10.1007/s10845-024-02346-x](https://doi.org/10.1007/s10845-024-02346-x).
- K. Ezukwoke, A. Hoayek, M. Batton-Hubert and X. Boucher, "GCVAE : Generalized-Controllable Variational AutoEncoder," *BELIEF 2022. Poster*.
- K. Ezukwoke, A. Hoayek, M. Batton-Hubert and X. Boucher, " β - Variational AutoEncoder and Gaussian Mixture Model for Fault Analysis Decision Flow in Semiconductor Industry 4.0," *European Network for Business and Industrial Statistics (ENBIS-21). Poster*.
- K. Ezukwoke, A. Hoayek, M. Batton-Hubert and X. Boucher, "GCVAE : Generalized-Controllable Variational AutoEncoder," *Journal of Machine Learning Research (JMLR)*.
- K. Ezukwoke, A. Hoayek, M. Batton-Hubert, X. Boucher and P. Gounet, "FAGPT : Leveraging Pre-trained Models for Failure Analysis Triplet Generation." *Journal of Intelligent Manufacturing (JIM)*. **Accepted**.

Data Scientist- Generative AI Datategy

Paris, France
Mar. 2024 - Present

- Generative artificial intelligence technology development for papAI and other intelligent product for Industry 4.0 automation.

Artificial Intelligence for Fault Analysis (FA4.0 EU Project) STMicroelectronics

Grenoble, France
Oct. 2020 - Sept. 2023

- Designing an A.I solution based on probabilistic graphical model for decision-making during failure root cause analysis observed during production of microelectronics.

Machine Learning for Anomaly Detection on Complex Chemical Reactors IFP Energies nouvelles

Lyon, France
Feb. 2020 - Aug. 2020

- Analysis of complex sensor time-series to detect anomalies during process monitoring of a pilot plant. Develop an a posteriori automated machine learning algorithm for early anomaly detection. Analysis of complex sensors, trends and potential anomalies.

DATA ANALYST/PYTHON DEVELOPER Wölfel Engineering GmbH

Wurzburg, Germany
April 2018 - Aug. 2018

- Algorithm design and implementation for handling Wind turbine data from Offshore Windpark.
- Data analysis and visualization using white label technology for in-house usage.

DATA ANALYST/PYTHON DEVELOPER Arun Cyber Technologies Ltd. (Startup Incubation Lab)

Chennai, India
Oct. 2016 - April 2017

- Data analysis for detecting cyber threat, intrusion and maintenance.

C# Software Developer

Vels Institute of Science, Technology Advanced Studies

Chennai, India
2015 - 2016

- C# Software Developer for digital software department.
- Customer Relationship Management (CRM) software developer for Parent Student Monitor.
- University Database management system maintenance.
- SQL programming for database management.

SERVICE

Reviewer : *WiML, IEEE CASE, EMNLP, AISTATS, ACL.*

AFFILIATIONS

Organizations : *CNRS UMR-6158 LIMOS, Blacks in AI, Masakhane.*

VOLUNTEERING



**The 10th International Conference on Learning Representations
ICLR.** Sponsors : Meta, DeepMind, Google Research, Byte Dance, Microsoft

Virtual
Apr. 25-29, 2022



**The 25th International Conference on Artificial Intelligence and Statistics
AISTATS.** Sponsors : G-Research, Google DeepMind, Facebook AI

USA. [Virtual]
March 28-30, 2022



**IEEE International Conference on Automation Science and Engineering
IEEE CASE.** Sponsors : IEEE, EMSE, INSA, IMT, LIMOS

Lyon, France
Aug. 23-27, 2021



Mentor on AI for Coral Reef Conservation in the Vamizi Island
Sponsors : Sida, K4A, IDRC-CRDI Canada, UNESCO-IRCAI

Mozambique
Oct. 2020 - 2021

**The 24th International Conference on Artificial Intelligence and Statistics
AISTATS.** Sponsors : G-Research, Google DeepMind, Facebook AI

USA. [Virtual]
April 13-15, 2021

SKILLS



Operating systems : Linux, Windows.

Programming languages : Python, Bash, R, MATLAB.

LLM : Training, Fine-tuning, Loss & Eval-Metric formulation, Agents, GPU.

Office softwares : LaTeX, Libre Office, Microsoft Office, Open Office.

Scientific packages : Pandas, Numpy, Sklearn, Tensorflow, Keras, Pytorch.

Web applications : Streamlit, Gradio, Django, Flask, Plotly Dash, Bokeh, Git.

Optimization : Algorithmic and convex optimization.

Languages : English, French.

Independent projects : Kernel methods, Cheese-coin (blockchain), Graph mining, Forecasting 1.0.

INVITED TALKS

Plate-Forme Intelligence Artificielle (PFIA-22)

Saint-Étienne, France

Presentation : Artificial intelligence for Fault Analysis in Semiconductor Industry

Highlight : GCVAE with Transformers for structured data generation.

TEACHING EXPERIENCE



Big data clustering

École des Mines de Saint-Étienne (EMSE)

Saint-Étienne, France
January, 2022

Introduction to Natural Language Processing (NLP)

École des Mines de Saint-Étienne (EMSE)

Saint-Étienne, France
January, 2022

Deep Learning practical class

École des Mines de Saint-Étienne (EMSE)

Saint-Étienne, France
2021