JOAN NWATU

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EDUCATION

Ph.D. Student - Computer Science and Engineering
University of Michigan, Ann Arbor, USA

📅 April 2027 (Expected Graduation)   📍 Ann Arbor, MI

- Research on representation in AI, specifically in vision & language (VL)
- Advised by Rada Mihalcea
- Member, Language and Information Technologies (LIT) Lab
- Member, AI Ethics and Equity Research Group
- GPA 4.0/4.0

B.Eng. Electronic Engineering
University of Nigeria, Nsukka, Nigeria

📅 Oct 2014 – Sept 2019   📍 Nsukka, Enugu, Nigeria

- GPA 4.45/5.0

EXPERIENCE

Artificial Intelligence Engineer (R&D)
Xend

📅 Nov 2019 – Jun 2022   📍 Enugu, Nigeria

- Proposed and developed a data analytics system for Xend merchants to extract and display insights from customer data leading to improved sales performance.
- Researched and implemented a computer vision project to solve the problem of Logo Identification using Pytorch pre-trained ResNet50 and Fastai library
- Set up an ETL pipeline to facilitate the extraction and transformation of data required for a Sales Prediction project using Amazon Web Services and Spark.
- Identified the problem of data inconsistency, conceptualized an efficient solution and deployed a data lake as a central data repository for Ogwugo Food Services using Amazon Web Services, Apache Spark, and Apache Airflow.

Machine Learning Intern
Ugarsoft Ltd

📅 May 2018 – September 2019   📍 Enugu, Nigeria

- Gathered and organized customer data for Natural Language Processing and Recommender System projects.
- Assisted with labeling entities in customer order data for Named Entity Recognition tasks.
- Retrained the Named Entity Recognition and Intent Classification models for an e-commerce chatbot system using Rasa Stack.
- Analyzed customer data using predictive modeling and drafted reports using data visualization techniques.

AWARDS

🏆 Awardee, 2022/2023 CSE Departmental Fellowship Award - University of Michigan

🏆 Awardee, 2021/2022 IELTS Prize - British Council Nigeria

🏆 1st Prize Solution Winner - 2020 Data Science Nigeria AI Commons Health and Wellbeing Hackathon

🏆 Student Scholar, 2019 Grace Hopper Celebration - Anita B.org

🏆 Awardee, 2016 Petroleum Technology Development Fund Scholarship (PTDF-LSS)

🏆 Awardee, 2016 NNPC/Chevron JV Undergraduate Scholarship

TECHNICAL SKILLS

Languages

Python   C

Machine Learning Libraries

NumPy   Pandas   Matplotlib/Seaborn/Plotly   PyTorch/Scikit-Learn   NLTK/SpaCy/FastAI   Rasa Stack

Big Data

Apache Hadoop/Spark/Hive/Airflow   Amazon Web Services/ Azure Databricks   SQL/NoSQL   MATLAB/Tableau/PowerBI

PUBLICATIONS

Bridging the Digital Divide: Performance Variation across Socio-Economic Factors in Vision-Language Models (EMNLP 2023)

Joan Nwatu*, Oana Ignat*, Rada Mihalcea

🔗 https://aclanthology.org/2023.emnlp-main.660/

Has It All Been Solved? Open NLP Research Questions Not Solved by Large Language Models (COLING 2024)

Oana Ignat*, Zhijing Jin*, Artem Abzaliev, Laura Biester, Santiago Castro, Naihao Deng, Xinyi Gao, Aylin Gunal, Jacky He, Ashkan Kazemi, Muhammad Khalifa, Namho Koh, Andrew Lee, Siyang Liu, Do June Min, Shinka Mori, Joan Nwatu, Veronica Perez-Rosas, Siqi Shen, Zekun Wang, Winston Wu, Rada Mihalcea

🔗 https://aclanthology.org/2024.lrec-main.708/

Visual Geo-Diverse Annotations on a Budget (COLING 2024)

Oana Ignat, Longju Bai, Joan Nwatu, Rada Mihalcea

🔗 https://aclanthology.org/2024.lrec-main.112/

CVQA: Culturally-diverse Multilingual Visual Question Answering Benchmark (NeurIPS 2024)

David Romero*, Chenyang Lyu*, Haryo Akbarianto Wibowo*, ..., Oana Ignat, Joan Nwatu, Rada Mihalcea, Thamar Solorio, Alham Fikri Aji

🔗 https://arxiv.org/abs/2406.05967

Uplifting Lower-Income Data: Strategies for Socioeconomic Perspective Shifts in Vision-Language Models (Under review)

Joan Nwatu, Oana Ignat, Rada Mihalcea

🔗 https://arxiv.org/abs/2407.02623

Towards AI For Everyone, With Everyone, By Everyone (Under review)

Rada Mihalcea*, Oana Ignat*, Longju Bai, Angana Borah, Luis Chiruzzo, Zhijing Jin, Claude Kwizera, Joan Nwatu, Soujanya Poria, Thamar Solorio

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PROJECTS

Award-winning solution for 2020 DSN AI Commons Health and Wellbeing Hackathon
DietAI

📅 September 2020   📍 Enugu, Nigeria

- Collaborated with team members to design project structure for an AI-powered nutrition web application for local Nigerian dishes
- Created an image dataset of 35 classes of local Nigerian food (including a None class)
- Trained an image classifier on the Nigerian food image dataset to 78 percent accuracy. 🔗 https://github.com/Anniejoan/Foodscan

INVITED TALKS

Machine Learning Bootcamp Speaker
University of Nigeria Engineering Career Fair

📅 Sept 2021   📍 Enugu, Nigeria

- Delivered a lecture on 'Introduction to Artificial Intelligence and Possible Career Paths' and led Engineering students and recent graduates through a guided deep learning project practical using Fastai.

Research Talk Speaker
University of Michigan African Study Center 15th Year Anniversary

📅 April 2024   📍 Ann Arbor, Michigan

- Shared my research on unequal representation in vision-language models.

LEADERSHIP & SERVICE

Admissions Recruitment Liason
CSE Graduate Org.
University of Michigan, Ann Arbor

📅 May 2023 – Present

- Developed and implemented strategies to improve admission processes and student diversity
- Facilitated student recruitment campaign at Computing Conferences (Grace Hopper/Tapia)

Webmaster LIT Lab
University of Michigan, Ann Arbor

📅 May 2023 – Present

- Manage LIT website publications

AI and Accessibility
Michigan AI Symposium
University of Michigan, Ann Arbor

📅 Nov 2022

- Facilitated registration and reception of the symposium attendees.

Vice President
Nigerian Society Of Engineers (UNN)
University of Nigeria

📅 Dec 2016 - Dec 2017

- Planned and organized a successful Mechatronics workshop/seminar for UNN engineering students.
- Worked with the team of NSE executives to promote and sustain a seasoned engineering undergraduate experience for students.

Logo Identification
DietAI

📅 April 2020   📍 Enugu, Nigeria

- Trained ImageNet pretrained ResNet models on public logo datasets (Web2M, Logo 2k and Flickr 27) using google colab, then proceeded to deploy the Flickr 27 trained model which had the best accuracy on binder for public testing. ⓞ https://github.com/Anniejoan/logo

ACADEMIC & PROFESSIONAL MEMBERSHIPS

Black in AI

ACL Association for Computational Linguistics

AnitaB.org Local Community - Africa

GSBES Graduate Society of Black Engineers and Scientists

Black SiS Black Sisters in STEM

NSE Nigerian Society of Engineers

NUESA Nigerian University of Engineering Students Association

APWEN Association of Professional Women Engineers in Nigeria

Honorable Member
NUESA House of Representatives
University of Nigeria

📅 Oct 2015 - June 2016

- Participated in important decision-making, bill approvals, and dissemination of relevant information to the students
- Represented the interest of my constituency and conveyed the complaints of the students to higher authorities