

# JOAN NWATU

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Anniejoan

Ann Arbor, MI

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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

### B.Eng. Electronic Engineering

University of Nigeria, Nsukka, Nigeria

Oct 2014 – Sept 2019 Nsukka, Enugu, Nigeria

## 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 Og-wugo 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 (Recently submitted to NeurIPS 2024)

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

🔗 <https://arxiv.org/abs/2406.05967>

👤 Uplifting Lower-Income Data: Strategies for Socioeconomic Perspective Shifts in Vision-Language Models (Recently submitted to EMNLP 2024)

**Joan Nwatu**, Oana Ignat, Rada Mihalcea

🔗 <https://arxiv.org/abs/2407.02623>

## 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>

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>

## 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.

## 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 name tag preparation 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.

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

## **ACADEMIC & PROFESSIONAL MEMBERSHIPS**

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**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