Ezinwanne Ozoani

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Education

09/2019 – 05/2022   DUBLIN, IRELAND

MSc Computer Science
Trinity College Dublin

Research | A Modularised Tool for Quantum/Quantum Enhanced Machine Learning

- Researched and created a modularised tool for quantum/quantum-enhanced k-Nearest Neighbour, SVM classifiers and Grover's Search algorithm. This tool explores various data encoding techniques to transform classical datasets (Wisconsin Breast Cancer dataset and Iris dataset) to quantum readable data. The modular components are then evaluated and analysed using Qiskit's cloud based quantum computer, against their classical machine learning counterparts.
- My work demonstrated the benefits of a modular quantum machine learning approach, as well as meeting the aim of improving the accessibility of quantum machine learning for beginner enthusiasts.

09/2015 – 12/2019   DUBLIN, IRELAND

BSc (Hons) Computer Science
Trinity College Dublin

Research | **Multi-user shared experiences in augmented reality.**

Gathered, documented and analysed quantitative data from users in order to optimise the efficiency of a shared Augmented Reality experience. The implementation incorporated 3D spatial positioning and real-time interaction, which illustrated the future possibilities of AR and shared AR in education, medicine, e-sports and more.

Achievements

- Awarded Volunteer of the Month for my current work with the non-profit Kona Connect| January 2022
- Awarded 2nd Place in Médecins Sans Frontières Synergy Pitch Contest for the BreathoScope project | 2019.

Work experience

05/2022 – PRESENT

REMOTE, CALIFORNIA & PARIS (BASED IN DUBLIN, IRELAND)

Research Engineer Internship
Hugging Face 🤗 [huggingface.co/Ezi]

- Researched and built an inclusive Model Card library and adjacent Ui application using python, streamlit, flask (for typescript handling), jinja for automated Ai model decimation/ model card generation. and model card section prompting.
- User Studies
    - Lead and collaborated with UX team members for question formation
    - Built interactive user demo's
    - This not only resulted in an increased attention to model cards within the company (channel growth from 4 to 49) , but also external as inquiries from the greater ML & twitter research audience.
- Made use of user studies to provide an inclusive recommendation system view point of the model card for ethicists, congress members, researchers and those new to ML.
- Working alongside ethicists and developer advocacy groups and input from wider dev community e.g ingestion data from early users for insights, discord & hub based conversations to incorporate computer vison model support.
- This resulted not only in a literature guidebook but also an increase in Ai model documentation/model card creation using the (pre-launch) tool by 1230% during the launch of diffusers.
- Collaborated on hosting ethical discussions, research and writing for the Dall-e mini and diffusors model documentation, content flagging and LLM filtering.
- Collaborated on building a data measurements tool and the published research paper , which helps one to quantify the characters and supports dataset comparison and curation. This allows people to begin to know more about the data that their intended Ai system will learn on (submission into NeurIPS 2022)

- [Most popular Arxiv link on December 14](#)
- [Top 3 of 1451 must read Ai papers published (Dec 6- Dec 15 2022)](#)
- Big Science, other citations & collaborations
  - [The Bloom model card research](#) and writing, along with cross domain discussions on ethics and training
  - Collaboration with the Dall-e mini launch on the model space, which resulted in a 130% user growth during its hosting.

12/2022 – PRESENT

REMOTE, MILAN (BASED IN DUBLIN, IRELAND)

Quantum Applied Researcher

Glo

- Working with the Indian government logging and agriculture department to build a quantum enhanced image classification system to classical logs of different classes into grading standards.
- Improved the feature ingestion capabilities through the implementation of amplitude encoding. This allowed for a greater number of features to be encode on a small circuit of limited qubits.

04/2021 – 04/2022

REMOTE, ZURICH SWITZERLAND (BASED IN DUBLIN, IRELAND)

Assistant Programmer & tech team co-ordinator
Spring Act (formally Kona Connect)

Connecting human rights case builders with individuals in vulnerable and abusive situations, thus empowering them through the use of artificial intelligence and NLP.

- I initially explored and used OpenCV to build a computer vision integration to differentiate and classify the upper and lower body. When an individual wants to record an instance of physical abuse, this integration enables them and legal practitioners to keep a record of these incidents, while building their case.
- I returned as a volunteer to refactor the existing python code base, mitigate the sql injection security risk using sqlalamcy, restructure the chatbot conversation flow & implement conversation suggestion for the user.
- Deployed Sophia the chatbot [sophia.chat] on the 9/12/2021 on Telegram and Viber using the Sunshine SDK, Azure & Zendesk's API. Sophia now provides global assistance to those suffering from domestic abuse in French, Dutch & Italian

Skills

Machine Learning / Artificial Intelligence:
Pandas, NumPy, Matplotlib, Sklearn, TensorFlow, OpenCV

Programming language: **Python**, C Java, Python, Qiskit, Haskell, R, MATLAB

Database: MySQL, SQL, Spark

OS & Related Skills: Linux, Anaconda, Jupyter Notebook, streamlit, LaTeX, GitHub, Markdown
Languages: English (native), German (A2.2)

Projects

Housing Market Prediction Model   08/2021

- Predicted the Close Price value for homes, using the Texas MLS dataset. I incorporated Random Forest, Linear Regression, XGb Random Forest and KNN Regression algorithms to train the model. I also made use of Matplotlib, Pandas, Seaborn and NumPy for data pre-processing and visualisation. As well as Cross validation RMSE, R-Squared, MAE and k-folds to check the model fit.
- My best model achieved an r-squared score of 0.999996.
- Check out the website(ozoani.eu) I built using Markdown, AWS Amplify and AWS Roue53, that details the pipeline.

Paint by Numbers using AI   Present

- This art & science project aimed to produce novel art in the paint by number format.
- This is done using the VGG16 image classification convolutional neural network, TensorFlow and transfer learning to reduce the differences between a target image and a reference style image.
- See examples of generated images on my GitHub.

Breathoscope   03/2019

- Developed and pitched an android application with 3D printed connective devices. It was produced in collaboration with Médecins Sans Frontières (Doctors Without Borders) and colleagues from different engineering disciplines.
- The app was researched and designed in order to support voluntary community health care workers in remote areas. It analysed heart rate, oxygen saturation, along with breath and cough analysis. This enabled healthcare workers to efficiently identify and classify upper and lower respiratory infections,