MUNACHISO SAMUEL NWADIKE

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Keywords: Machine Learning, Artificial Intelligence, Deep Learning

Education

Mohammed Bin Zayed University of Artificial Intelligence - Abu Dhabi, UAE **Dec. 2022**
Master of Science in Machine Learning (ML)

New York University, Abu Dhabi - 19 Washington Square North, NY **Dec. 2019**
Bachelor of Science, Math and Computer Science

- Honors: **Winner, CEO for a Day 2019**, Refinitiv Data Co. MENA (London Stock Exchange)

Work experience

Social Machines And Robotics Lab, NYU (Abu Dhabi Campus) – Abu Dhabi, UAE **Jun. 2023 – Present**
Artificial Intelligence Research Engineer (Affective Computing)

- Leads team of 3 in developing advanced models for automatic analysis of human affect (emotion, mood, etc.), using deep learning, to achieve publication in the top CS Journal for affective computing..
- Designed and implemented cutting-edge algorithms for end-to-end prediction of emotional and/or mental state; targeting measured increase of valence and arousal prediction by 11% concordance correlation coefficient (CCC) to enhance industrial viability.

Center for Integrative Artificial Intelligence, MBZUAI – Abu Dhabi, UAE **Jan. 2021 – Dec. 2022**
Machine Learning Systems Research Engineer

- Coordinated team of 12 using agile project management processes such as daily standups, whiteboarding sessions and rapid adaptation, to propose intelligent laser-guided drone coordination for sea-faring vessel cargo retrieval in and despite a 3-months late start, achieved semifinalist win with $3,250,000 in prizes, and achieved state of the sea-vessel detection with computer vision models in-ROS2 & Gazebo simulation · pdf · demo
- Built a pipeline for converting movies to cartoons using Generative Networks (AnimeGAN) in TensorFlow, showing an free & open-source alternative to paid services (such as Midjourney), with positive feedback from over 50 individuals· demo · github
- Developed baseline code with team of 5 and served as first-author for a machine learning system to efficiently tune AI hyperparameters using Bayesian Optimisation, under cost constraint to release the first ever library for pipeline-level tuning. Built using BoTorch, MicroKubernetes (Docker), and Argo Workflows, the system can tune ForteNLP, PyTorch, Tensorflow pipelines.

Clinical Artificial Intelligence Lab, NYU Abu Dhabi (Abu Dhabi Campus) – Abu Dhabi, UAE **Jan. 2019 – Dec. 2020**
Artificial Intelligence Research Engineer

- Utilized AI to catalog unique machine-learnable features in african accents and mobilize mass-dataset collection through web platform, leading to securing a $8000 IndabaX AI for Development Grant to enhance accessibility of internet-based education content · platform
- Spearheaded project to show vulnerability of AI used for chest X-rays disease detection to novel attacks, undetectable to the human eyes, using Keras and Tensorflow, on the National Institute of Health dataset and demonstrated novel techniques for radiologists to protect patient diagnosis using Gradient Class Activation Mappings · pdf
- Engineered a mobile app for American sign language finger spellings detection using Keras, and PyTorch (Python), and collaborated with 2 teammates to integrate the app, enabling mobile phone cameras to be used to understand sign language. · demo

Skills and Interests

- Programming: Python, C/C++, Matlab, Bash, LaTeX
- Cloud and Computing: Docker, Kubernetes, MicroK8s, GCP, AWS, Slurm, Linux, Unix
- Artificial Intelligence: BoTorch Tensorflow, Keras, PyTorch, Argo Workflows, NumPy, NLTK, SpaCy, ForteNLP
- Robotics: ROS2, Gazebo, Point Cloud Library (PCL)
- Business: PowerPoint, Word, Advanced Excel, Microsoft Project, Smartsheet
- Languages: Advanced French, Intermediate Chinese (Mandarin)
- Interests: Public Speaking, Fitness, Language Acquisition

Computer science publications

1. Memoization-Aware Bayesian Optimization for AI Pipelines with Unknown Costs · *Neural Information Processing Systems 2023* (in review). Munachiso Nwadike, A. Essofi, R. Salahuddeen N. Kumar, E. Xing, W. Neiswanger, Qirong Ho
2. Explainability Matters: Backdoor Attacks on Medical Imaging · Trustworth AI in Healthcare Workshop, *Association for the Advancement of Artificial Intelligence 2021* · pdf. Munachiso Nwadike, T. Miyawaki, E. Sarkar, Michail Maniatakos, Farah Shamout