YOUNESS EL BRAG

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Education

- **Université Abdelmalek Essaâdi Tétouan** — Tétouan ,Moroccco
  Master of Science in Embedded Systems — *Aug. 2019 – May. 2022*
- **Université Abdelmalek Essaâdi Tétouan** — Tétouan, Moroccco
  Bachelor of Mathematics and Computer Science — *Sep. 2016 – July. 2019*

Experience

- **The national university of Water and Environmental Engineering** — Rivne, Ukraine
  Remote assistant Machine learning researcher — *Mars 2019 – Fer 2022*
  - **End-to-End integration Models**: As part of my experience in the field of Machine Learning, I have worked on designing and implementing an end-to-end ML pipeline for a web application that diagnoses eye diseases. and models Training using TensorFlow Github
  - **Data Quality Improvement:**: Another aspect of my work in Machine Learning involved improving the quality of the input data. I have experience working with real-world data, which can often be imbalanced or noisy. To address these issues, I used Generative Adversarial Networks (GANs)
- **jordan university of science and technology** — jordan, Ar-Ramtha
  Remote Machine learning engineer — *may 2022 - Present*
  - **Post-Processing**: develop a tool to automate the processing of Medical data images to handle issues that the scanner parameters may cause or patient anatomy tool include (bias field corrected, Skull stripping) Github
  - **3D Medical data** : get hands-on 3D data volume to handle tasks related to geometry guarantees and understand different architecture models such as Seg-Capsule network and Group-Convolution Github
  - **segmentation**: exploring advanced models based on Transformers such TransUnet, TransBTS, and trying to use different types of attention Mechanisms in Biomedical image Processing to dynamically weights the importance of different inputs or features in the model. Github
  - **weakly supervised learning**: Designed a new approach Pyramid Position Encoding Generator based Fast-Fourier Convolutions to speed up training Forward and is applied on Multi-Instance Learning Binary Classifications in the whole slide image (WSI) based pathology diagnosis or Coronaries arteries diseases. Github
  - **Dev Environment ML**: Experienced in developing ML environments for real-world applications, including setting up a development environment using Docker and Github actions for easier deployment of CI/CD. Github
  - **Complex-Value Neural Network**: during my experience in machine learning, I worked on developing AI models that can learn from diverse domain data representations, including frequencies. To achieve this, I developed a new approach called Attention Filter Gate, which is based on Complex-Value Neural Network to improve Segmentation Task Github
  - **Databases**: Collecting data Samples from Lab and cleaning up and analyzing many of type Data such as Medical images and dealing with different types of formats like CSV which require complex queries SQL in past experiences I worked with Postgres and other services database management
- **kaggle competitions** — Google, Kaggle Platform
  Data Scientist Level Expert — *since 2019 and 2023 Present*
  - **Competition RSNA Screening Mammography Breast Cancer Detection**: The goal of this competition is to identify breast cancer. I developed multi-models and provide Full Documented Notebook on how does model works and used Pytorch-lighting . **Kaggle**
  - **Competiton AMP®-Parkinson's Disease Progression Prediction**: The goal of this competition is to predict MDS-UPDR scores. following the purpose of competition I work on analyzing Data and dealing with Feature engineering Tasks **Kaggle**
- **Content writer - Machine Learning** — Medium Platform
  Writing Scientific Articles about AI — *Since 2022 - 2023 Present*

- **Articles Medium** :
  - Software 1.0 Vs Software 2.0: Revolutions of Next Generation Applications Powered by AI
  - The Benefit of Learning from the Frequency Domain in Segmentation Biomedical Images
  - Measuring Neural Network Performance: Latency and Throughput on GPU
  - The Fast Fourier Convolution Network: A Fast and Efficient Approach for Convolutional Neural Networks
  - Multi-Instance Learning for Biomedical Image Analysis
  - Post-Processing Medical Images: N4 Bias Correction and Skull Stripping

Projects Github

- **Web Application House Realtor**: web Backend-djangoThat manages the Realtors' Sells and Buy House with Administration dashboard
- **NetGrad library**: Open source Python library for building a neural network from scratch using Numpy
- **Timer-NE555-astabel**: web application Electronic Simulation of Timer-NE555 using PySpice library
- **SMS-python-Sender Tool**: Tool CLI of sending SMS using APIs providers using Python and Bash Programming
- **Medical web Application** : The eyes diseases can be described to us additional information about other diseases may patient has in his situation, we try to build a model based on a convolution neural network to predict the disease from external eye facial

Researches and Publications

[1] Mahmoud Smaida, Serhii Yaroshchak, Youness El Barg. *DCGAN for Enhancing Eye Diseases Classification.* In *CMIS*, pages 22–33, 2021.

[2] Mahmoud Smaida, Serhii Yaroshchak, Youness El Barg. *Medical Image Enhancement Based on Convolutional Denoising Autoencoders and GMD Model.* In *CMIS*, pages 22–33, 2021.

[3] Haytham Al Ewaidat, Youness El Barg. *Identification of lung nodules CT scan using YOLOv5 based on convolution neural network.* In *arXiv e-prints*, pages arXiv–2301, 2022.

[4] Haytham Al Ewaidat, Youness El Barg, Ahmad Wajeeh Yousef E'layan, Ali Almakhadmeh. *Addressing Algorithmic Uncertainty in Tumor Segmentation: An Ensemble Learning Approach to BraTS Challenge 2020. Under Progress*, arXiv e-prints, pages arXiv–2301, 2023.

[5] Haytham Al Ewaidat, Youness El Barg, Ahmad Wajeeh Yousef E'layan, Ali Almakhadmeh. *Attention Filter Gate U-Net: Learning from Frequency domain for Medical image Segmentation. Under Progress*, arXiv e-prints, pages arXiv–2301, 2023.

Programming Skills

- **Languages**: Python, Javascript, C++, Shell, SQL **Technologies**: Docker, Github Action, Pytorch, Tensorflow, Linux OS