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

## EXPERIENCE

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- **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** 
  - **Competition 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

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- **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

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- **DCGAN for Enhancing Eye Diseases Classification:** we present Deep Convolutional Generative Adversarial Network (DCGAN) method that generates synthetic medical images. In addition, using GMD (Glaucoma, Myopia, and Diabetic retinopathy) model to improve eye diseases classification
- **Medical Image Enhancement Based on Convolutional Denoising Autoencoders and GMD Model:** we demonstrate the use of Convolutional Denoising Autoencoders (CDAE) to enhance the images we obtained from DCGAN (which we obtained from a previous paper)
- **Identification of lung nodules CT scan using YOLOv5 based on convolution neural network:** we use (CNN) building blocks based on YOLOv5 (you only look once) to learn the features representations for nodule detection labels, in this paper, we introduce a method for detecting lung cancer localization.
- **Addressing Algorithmic Uncertainty in Tumor Segmentation An Ensemble Learning Approach to BraTS Challenge 2020:** We trained two independent segmentation models, 3D U-Net++ and 3D U-Net++ with attention gate, on the BraTS 2020 dataset to segment gliomas into the whole tumor (WT), tumor core (TC), and enhancing tumor (ET). We evaluated the performance of each model using the dice similarity coefficient (DSC) and Jaccard similarity coefficient (JSC).
- **Attention Filter Gate U-Net: Learning from Frequency domain for Medical image Segmentation:** The aim was to improve the existing Attention Gate used in U-Net for medical image segmentation. The goal was to reduce the computational cost of training the model, improve feature extraction, and handle the problem of matrix multi- plication used in CNN **Under Progress**

## PROGRAMMING SKILLS

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