YOUNESS EL BRAG

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Nationality: Moroccan

Programming Skills

Languages	Python, Javascript, C++, C, Shell, HTML/CSS
Technologies	Docker, Django, Github Action, Git, Linux, PostgreSQL
Computing	NifTK, Latex, Pytorch, Tensorflow, DeepSpeed, kubeFlow, ElasticSearch

Experience

- **Department of Allied Medical Sciences-Radiologic Technology JUST** jordan, Ar-Ramtha
  Software Engineer || AI/ML Researcher - Research Team *may 2022 - Present*
  - built an automated tool to enhance contrast Medical image anatomy in brain tissue. implemented bias field correction and skull-stripping techniques.
  - Managed and processed large dataset images and CSV files. Utilized machine learning algorithms within Pandas and Scikit-learn to extract features from data.
  - Designed an advanced model-based Mixture of Expert (MoE) for accurate medical segmentation. Implemented strategic learning with ensemble techniques to train large vision models for accurate medical segmentation
  - Experienced in Docker-based development environment setup and CI/CD deployment using GitHub Actions for real-world ML applications.
  - Developed Attention Filter Gate, a novel mechanism based on Complex-Value Neural Network, Worked Transformers models using Pytorch that learn from diverse domain data representations, including frequencies.

- **The national university of Water and Environmental Engineering** Rivne, Ukraine
  Machine learning Engineer Intern || Remote *Mars 2021 – Fer 2022*
  - Used NIFTI and PyDicom libraries for data pre-processing. Implemented techniques like normalization and data augmentation to enhance image quality.
  - Developed classification and segmentation models using TensorFlow, including Convolutional Neural Networks (CNNs) and U-Net
  - Developed a Dockerized web app to monitor and deploy machine learning models. Implemented end-to-end MLOps pipeline with Git integration
  - implemented statistical testing, model confidence analysis, and interpolation techniques, reducing team research time by 36% during Publication Stage

- **kaggle Hackathons** Google, Kaggle Platform
  Data Scientist Expert *Fer 2019 - Present*
  - Participated in competitions to enhance my data science skills and gain experience in handling diverse data formats.
  - Engaged in organization-hosted projects to Explore cutting-edge techniques within frameworks to enhance problem-solving abilities
  - Re-implemented computer vision models for object detection and semantic segmentation, as well as Transformer-based approaches for NLP

Projects

- **Nano-AutoGrad Framework**: Python, Dynamic Programming
  - A micro-framework for building and training neural networks from scratch, utilizing automatic differentiation and computational graphs.
  - Used graph algorithms and Data structure to build the Core Engine of Micro-Framework Topology Sorting and programming paradigms OOP
  - Deployed API layers of Micro-Framework in a PyPI repository for easy installation and utilization by other programmers.
  - Created a full Documentation of Nano-AutoGrad using ReadDocs and Sphinx
  - Wrote a comprehensive technical report on Nano-AutoGrad explaining the foundations of deep learning from a mathematical perspective.
- **Medical web Application**: Python, Streamlit , Docker, TensorFlow
  - Productionized a service that automatically classifies signs of the patient based on the Eyes from medical Image
  - Collected The data from the web and Scraped by selenium automation Task and Testing
  - containerized web application for easy use with the Team and Deployment Ci/CD Following Life Cycle-ML project within MLOps
- **Application realtors Management**: Python, Django, Javascript, Docker, Postgres
  - Built a complete set of REST APIs, including login, form handling, and an administration dashboard, using Django
  - Implemented Micro-service to build each Service can be deployed independently to ensure scalability and maintainability of the application.
  - Implemented test before code (Test-Driven Development) process resulting to make the code clearer, bug-free and improve the productivity
- **Big Data ETL Application**: Python, Flask , Elastic Search . SQLite
  - Created data pipelines ETL in Python to perform preprocessing tasks before loading the data into the database.
  - Built APIs to facilitate data collection and handle incoming requests.
  - Tracked and analyzed ETL process logs using ElasticSearch to ensure correct execution of all operations.
- **Pyramid Position Encoding Generator**: Python, Pytorch
  - developed a new approach based Fast-Fourier Convolutions weakly supervised Learning speed up training

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, Ahmad Wajeeh Yousef E'layan, Ali Almakhadmeh. *Nano-AutoGrad: A Micro-Framework Engine Based on Automatic Differentiation for Building and Training Neural Networks. DOI: 10.22541/au.168935608.83967551/v1*, authorea e-prints, pages authorea–2301, 2023.

[4] 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.

[5] Haytham Al Ewaidat, Youness El Barg, Ahmad Wajeeh Yousef E'layan, Ali Almakhadmeh. *Strategy Learning of Scaling Vision-Model 3D Volumetric Data in Biomedical Segmentation Task Brain Tumor: An Ensemble Learning Approach to BraTS 2020 Challenge. Under Review*, arXiv e-prints, pages arXiv–2301, 2023.

[6] 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.

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*

Languages

- English (intermediate), French (intermediate), Arabic (Native)

miscellaneous

- **Culture**: Reading, Guitar , Coding , Music **Sport**: Football, Billiard