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Objective

Experienced Software Engineer with 3+ years in DevOps, MLOps, and backend development. Proven track record of architecting scalable infrastructures, deploying CI/CD pipelines, and building machine learning models. Skilled in AWS, Kubernetes, and automation, eager to solve real-world problems through innovation and collaboration.

Work Experience

Dec 2023 - Present

ML Cloud Consultant @ Bexpirt, UK.

Involved at architecting and implementing MLOps and DevOps projects for MENA customers.

- Job Role:

- o Architecting scalable training and serving pipelines for offline/online ML models.
- o Managing AWS Cloud infrastructure across 7 AWS accounts for Backend, Frontend, ML, and Data teams.
- o Architecting serverless cloud-native solutions and developing Infrastructure as Code (IaC) for it.
- o Designing and implementing solutions for large-scale data processing and migration.
- o Creating and executing large-scale migration plans i.e) Moving from ECS to EKS.
- o Designing, developing, and maintaining scalable and reliable CI/CD pipelines.
- o Managing and maintaining compute clusters in AWS (ECS and EKS).
- o Conducting rigorous comparisons of 3rd-party tools, selecting and integrating them into the infrastructure.
- o Managing the monitoring solution and create tailored alerts.
- o Continuously creating and updating documentation.

- Technologies:

Cloud Provider: AWS, Cloudflare.

IaC: Terraform, SAM, Serverless-Framework.

CI/CD: Github Actions, Atlantis, Terraform Cloud.

ETL: AWS Glue Crawler, Glue Database, Glue Job, S3, Firehose.

MLOps: SageMaker, bentoml, Prefect, MLflow, DVC.

Micro-frontend: Cloudfront, S3, Route53.

Container Orchestrators: ECS, EKS.

Monitoring: DataDog, NewRelic.

May 2023 - Dec 2023

DevOps Engineer @ n-go, KSA.

Adminstrating the infrastucture for 1M user Application.

- Job Role:

- o Administering and monitoring a microservices application with 1 million users running on a Kubernetes (Amazon EKS) cluster.
- o Administering and maintaining Jenkins CI pipelines for performing Dockerization and image scanning.
- o Developing Infrastructure as Code (IaC) using Terraform, Kustomize, and Helm, ensuring all follow the GitOps pattern.
- o Developing custom and secure automation solutions to increase developer productivity.
- o Administering and maintaining GitOps CD pipelines for Kubernetes using ArgoCD.
- o Continuously enhancing the infrastructure and performing necessary migrations.
- o Writing and creating Prometheus dashboards using PromQL for Kubernetes.
- o Ensuring security by implementing security best practices.
- o Administering RDS databases and MongoDB clusters.
- o Administering Cloudflare DNS and other services.
- o Administering Twingate ZTN solutions.

	<ul style="list-style-type: none"> - <i>Technologies:</i> <p>Cloud Provider: AWS, OCI, Cloudflare. Container Orchestrators: EKS, OKE. CI/CD: Jenkins, GitHub actions, ArgoCD. kubernetes Autoscaler: Cluster Autoscaler, karpenter. Monitoring: Prometheus, Grafana, Loki, ELK, Kiali, Jaeger. IaC: Terraform, Kustomize, Helm, Ansible. VPN & ZTN: Pritunl, Twingate. Service Mesh: Istio.</p>
Jan 2023 - Apr 2023	<p>MLops Engineer @ Susoft, Norway. Building microservice application for Training and deploying machine and deep learning models for Sales forecasting. Performing customer segmentation to direct marketing campaigns.</p> <ul style="list-style-type: none"> - <i>Job Role:</i> o Creating a training and serving MLOps pipeline for multiple time series forecasting models, such as Prophet, Neural Prophet, and TFT. o Developing custom data pipelines for extracting, loading, and transforming required data from MariaDB databases. o Evaluating and monitoring model performance. o Ensuring high availability of the serving models. <ul style="list-style-type: none"> - <i>Technologies:</i> <p>Model Training: PyTorchForecasting, Pytorch, pandas, Prophet, NeuralProphet. Model Monitoring: Weight and biases, Prometheus, Grafana. Model Serving: torchScript, Docker, K8s. Model Registry: Minio. Asynchronous communication for issuing train request is done using RabbitMQ Gateway and load balancing services performed using NodeJS.</p>
Jan 2022 - Jan 2023	<p>Software Engineer @ Freelancer. Bulding Microservices and monolithic applications.</p> <ul style="list-style-type: none"> - <i>Job Role:</i> o Create complete RESTfull API, GraphQL Services following client requirements. o Create documentation and Swagger documentation for it. o Building scalable and decupled architectures. <ul style="list-style-type: none"> - <i>Technologies:</i> <p>Programming Languages: Python, NodeJS. HTTP Servers Frameworks: ExpressJS, Flask. Authentication: Jsonwebtoken (JWT). Client API: REST, GraphQL, SocketIO. Others: jest, Joi, Mongoose, amqp, sequelize, Crypto, axios, Multer, Docker-Compose.</p>
Jan 2021 - Jan 2023	<p>Teaching & Research Assistant @ Menoufiya University, Egypt.</p> <ul style="list-style-type: none"> o Teaching courses on AI, deep learning, image processing, and computer vision. o Teaching the CCNA curriculum, preparing exams, and evaluating students. o Teaching the MCSA curriculum, preparing exams, and evaluating students. o Teaching alorithms, data structure, Operating systems courses. o Teaching backend programming using Node.js.

Education

2021 - 2023	<p>Faculty of Computers and Information, Menoufia university, Egypt. M.Sc. in Computer Vision, specialized in deep learning research, graduated in 2023.</p> <ul style="list-style-type: none"> o Architected Convolutional Neural Networks (CNNs) for detecting COVID-19 in medical images. o Built training pipelines, validated model accuracy, and performed model comparison.
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	<ul style="list-style-type: none"> ◦ Monitored experiments, documented results, and writing papers.
2015 - 2019	<p>Faculty of Computers and Information, Menoufia university, Egypt.</p> <p>B.Sc. Honors. I graduated with highest grade on my class with an Excellent honors GPA of 3.6.</p> <ul style="list-style-type: none"> ◦ Hired as a Teaching Assistant at the same institute. ◦ My graduation project created an intrusion detection system for detecting various network attacks in software-defined networks using deep learning CIC-IDS2017 is used a training dataset <p>Professional Certificates.</p> <p>AWS Certified Solutions Architect - Associate [Link]</p> <p>AWS Certified Machine Learning - Specialty [Link]</p>

Publications

- 2022 **Multiscale aware classification of COVID-19 from Chest X-Ray using a spatially weighted atrous spatial pyramid pooling CNN** [\[Link\]](#).
Mahmoud Z fetoh, Khalid M. Amin, Ahmed M. Hamad
 In this paper I propose, scale invariant CNN architecture for COVID-19 classification. Proposed model based on building a scale space in each layer using Atrous spatial pyramid pooling then selecting a correct space to operate at using spatial attention module.
- 2021 **COVID-19 Detection Based on Chest X-Ray Image Classification using Tailored CNN Model**, [\[Link\]](#). **Mahmoud Z fetoh**, Khalid M. Amin, Ahmed M. Hamad
 In this paper I propose a very light-weight model as a consequence of using spatial separable kernel and depth-wise separable kernels for COVID-19 classification.
Published at: IJCI.

Frameworks & Technical Skills

Programming Languages:	Python, NodeJS, GoLang (learning)
HTTP Servers Frameworks:	ExpressJS, Flask.
Version Control Tools:	Git, Github, Bitbucket.
Data Science:	PyTorch, Pandas, statsmodels, Prophet, Numpy, OpenCV, Plotly, LLAMA 2, PaddleOCR.
MLOps:	SageMaker, Prefect, bentoml, Mlflow, Hydra, DVC.
Client API:	REST, GraphQL, gRPC, SocketIO.
Security Utilities:	Joi, Jsonwebtoken (JWT), OAuth 2.0.
Databases:	MONGODB, MySQL, PostgreSQL, MariaDB.
Adminstration:	CCNA, MCSA, RHCSA, Kubernetes,
Cloud Provider:	AWS, OCI, Cloudflare.
Monitoring:	Prometheus, Grafana, Loki, ELK, kiali, jaeger, DataDog, NewRelic.
Container Orchestrators:	EKS, OKE, ECS, Docker-Compose.
Infrastrucure as Code :	Terraform, Kustomize, Helm, Ansible.
CI/CD:	Atlantis, Terraform Cloud, Jenkins, Github Actions, ArgoCD.
VPN & ZTN:	Pritunl, Twingate, Cloudflare Warp.
Message Broker:	RabbitMQ, Kafka.
Documentation:	Swagger, \LaTeX .
Caching:	Redis, MinIO.