Mahmoud Zaky Fetoh

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Objective

I am a Software Engineer with 3 years of experience in software engineering, passionate about solving real-world problems and collaborating with great engineers from whom I can learn.

I have diverse experience across various disciplines, including backend development, MLOps, computer vision research, and DevOps.

Education

2021 - 2023	**Faculty of Computers and Information, Menoufia university**, Egypt. M.Sc. in Computer Vision, specialized in deep learning research, graduated in 2023. ∘ Architected Convolutional Neural Networks (CNNs) for detecting COVID-19 in medical images. ∘ Built training pipelines, validated model accuracy, and performed model comparison. ∘ Monitored experiments, documented results, and writing papers.
2015 - 2019	**Faculty of Computers and Information, Menoufia university**, Egypt. B.Sc. Honors. I graduated with highest grade on my class with an Excellent honors GPA of 3.6. ∘ Hired as a Teaching Assistant at the same institute. ∘ My graduation project involved creating an intrusion detection system for detecting various network attacks in software-defined networks using deep learning CIC-IDS2017 is used a training dataset **Professional Certificates.** AWS Certified Solutions Architect - Associate [Link] AWS Certified Machine Learning - Specialty [Link]

Work Experience

Dec 2023 - Present	**ML Cloud Consultant @ Bexprt**, KSA. Involved at architecting and implementing MLOps and DevOps projects for MENA customers. - *Job Role*: ∘ Architecting scalable training and serving pipelines for ML models. ∘ Managing AWS Cloud infrastructure across 7 AWS accounts for ML and Data teams. ∘ Architecting cloud-native solutions and developing Infrastructure as Code (IaC) for them. ∘ Designing solutions for large-scale data processing. ∘ Creating and executing large-scale migration plans. ∘ Designing, developing, and maintaining scalable and reliable CI/CD pipelines. ∘ Managing and maintaining compute clusters in AWS (ECS and EKS). ∘ Conducting rigorous comparisons of 3rd-party tools, selecting and integrating them into the infrastructure. ∘ Managing the monitoring solution and create tailored alerts. ∘ Continuously creating and updating documentation. - *Technologies*: **IaC**: Terraform. **Clould Provider**: AWS, Cloudflare. **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. **Monitoring**: DataDog, NewRelic. **Container Orchestrators**: ECS, EKS.
May 2023 - Dec 2023	**DevOps Engineer @ n-go**, KSA. Administrating kubernetes clusters for 1M user Application. - *Technologies*: **Clould 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.
Jan 2023 - Apr 2023	**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. - *Technologies*: **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.
Jan 2021 - Jan 2022	**Teaching & Research Assistant @ Menoufiya University**, Egypt. Teaching machine Learning and Computer vision Courses .

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,
Clould Provider:	AWS, OCI, Cloudflare.
Monitoring:	Prometheus, Grafana, Loki, ELK, kiali, jaeger, DataDog, NewRelic.
Container Orchestrators:	EKS, OKE, ECS, Docker-Compose.
Infrastucture 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.

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.

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