

Kartik P. ZODE

✉ kartikzode19@gmail.com | ☎ 8983491083 | 💻 kartik-zode-b1037822a | 📍 Pune, Maharashtra

OBJECTIVE: AI Engineer with 3 years of experience in Artificial Intelligence and product development with proven track record in leading development to enhance consumer experience and product efficiency.

TECH STACK

- **Languages:** Python, Bash.
- **Machine Learning:** Regression, Neural Networks, Convolutional Neural Networks, Decision Trees, Random Forest, SVM, Feature Extraction, Natural Language Processing, Image processing, Time Series Modelling
- **Frameworks and Libraries:** scikit-learn, scikit-image, OpenCV, PyTorch, ONNX, TensorFlow, Langchain, Dify, n8n, Steamlit, fastAPI, huggingface, openAI, NLTK
- **Foundation Models:** gpt-4o-mini, o1-mini, o3-mini, claude-3.5-sonnet, claude-3.7-sonnet, Llama 3.1(8B), Llama3.2(1B,3B), Mistral, Gemini 2.0-flash.
- **Data Management:** MongoDB, Faiss, Milvus, Pyspark, Databricks, kafka, faust-streaming.
- **Cloud Services:** AWS (EC2, Lambda, S3, DynamoDB, CloudWatch, SNS), Microsoft Azure (Azure Devops, VMs, WebApps, ContainerInstances, Azure Cognitive Services, AzureFunctions, BlobStorage, CosmosDB)
- **Tools:** Kubernetes, Docker, Mlfow, Kubeflow, Git, Github, Github Actions, Prometheus, Grafana, Cursor, VScode, Tableau

WORK EXPERIENCE

AlgoAnalytics pvt. ltd. — *Associate Data Scientist*

FEB 2023 - PRESENT

PROJECT: AKSHA (AI POWERED VIDEO SURVEILLANCE SYSTEM) (SHARADA INDUSTRIES, UNITED TOOLKITS, NTT DATA)

- Aksha enhances your already available cctv system by adding features like Object Detection, Anomaly Detection, Custom Alert Detection coupled with instant notifications on Email/Telegram and Whatsapp.
- Refactored Python backend using Object-Oriented Programming (OOP) principles to enhance maintainability and scalability, leading to implementation of **CICD** (Continuous Integration & Delivery) pipeline that would publish docker images if unit tests are passed.
- Optimized code performance by implementing concurrent execution and asynchronous programming, significantly improving CPU utilization and application efficiency. This led to a staggering **40%** reduction in **frame processing time** and a **70%** reduction in time taken to send **Notifications**.
- Packaged Python source code into standalone executables, streamlining deployment and distribution while reducing **docker-image** size by **50%**.
- Collaborated with the team to deploy a Aksha POC on edge devices in **Japan**, integrating Microsoft Azure Services.
- **Optimized** Yolo model for production using **post training quantization** resulting in a **3X** speedup in **inference time**. Exploring **model pruning** techniques to further reduce the latency.
- Lead the development of an **event driven distributed architecture** for Aksha that will be **Scalable, Fault Tolerant** using kubernetes and kafka.

PROJECT: AGENTIC AI RESEARCH (NTT DATA)

- Applied architectural patterns for foundation model-based agents, enhancing goal-seeking and plan generation capabilities in AI systems.
- Implemented foundation model-based agentic patterns such as Passive/Proactive Goal Creator, Prompt/Response Optimizer, and Retrieval Augmented Generation.
- Implemented Multi-Modal Guardrails to ensure safe and ethical agent behavior, mitigating potential risks associated with FM-based agent interactions

PROJECT: PRODUCT DESCRIPTION GENERATOR (NTT DATA)

- Developed an AI solution to generate product descriptions, summaries, and taglines using generative LLMs. Implemented batch inference on **AWS Bedrock** with Claude models, reducing processing time and costs by **50%**.
- Set up secure storage and data flow with S3 buckets and IAM roles for efficient content handling.
- Evaluated output quality with ROUGE, BLEU, and BERTScore to ensure accuracy and relevance.

PROJECT: RAG ENHANCED TOOLSET (NTT DATA)

- Developed and implemented **HyDE** (Hypothetical Document Embeddings) to improve query rewriting, leveraging instruction-following language models and contrastive encoders.
- Implemented the **query2doc** query expansion technique using Large Language Models (LLMs) to improve information retrieval systems.

AlgoAnalytics pvt. ltd. — *Full-time Intern*

JUNE 2022 - FEB 2023

- Collaborated towards designing and implementing a new feature extraction approach for vision based anomaly detection to detect unusual activities in the frame.
- Designed a hybrid **Yolo** model training pipeline using **Azure**, **AWS**.
- Designed and implemented unit testing for early bug detection and code reliability.

AWARDS AND CERTIFICATIONS

Star Performer Award — *AlgoAnalytics*

OCT 2023 - DEC 2023

Amazon Web Services (AWS) — *AWS Certified Solutions Architect - Associate*

OCT 2023 - PRESENT

- Certification ID: 9J4F8LMCON1E1VWY
Verify at: [AWS Certification Verification Link](#)

EDUCATION

Data Science & Artificial Intelligence — *Post Graduate Diploma*

SEPT 2021 - JULY 2023

College Of Engineering, Pune (COEP)

GPA: 8.41

Savitribai Phule University, Pune, Maharashtra

Mechanical Engineering — *Bachelor of Technology*

JULY 2015 - JULY 2019

St. Vincent Pallotti College

GPA: 7.2

RTMN University, Nagpur, Maharashtra