

+91-9962645223
Gurgaon, Haryana
reachme.abhishek.kr@gmail.com

Abhishek Kumar

Senior Data Scientist

Portfolio: [abhinine4.github.io](https://github.com/abhinine4)
github.com/abhinine4
linkedin.com/in/akumar58

Hello, I am a Senior Data Scientist with 4.5 years of experience in machine learning, data science, and software engineering with a Master's degree in Computer Science & Engineering specializing in artificial intelligence (computer vision and NLP). I build most frequently with Python, C++, and PyTorch. I am currently building a conversational chatbot using generative AI that provides transactional insights and personalized financial advisory based on users' spending and earning patterns. I am seeking new roles as an applied scientist to leverage my expertise in solving complex real-world problems.

SKILLS

Language and Database	Python, C++, SQL, Java (Familiar), MongoDB, Weaviate, MySql, SOLR
Framework and Libraries	PyTorch, TensorFlow, Langchain, Django, Transformers, OpenCV, Sklearn, NumPy, XGBoost, Spark
Tools and Monitoring	Git, Docker, AWS, Kubernetes, Jenkins, New Relic, Grafana, Prometheus, Swagger

WORK EXPERIENCE

Senior Data Scientist / Lens.ai

FEB 2024 — Present

Mobikwik

Gurgaon, Haryana

- Developed a financial advisory chatbot based on user transactional patterns using Langchain, MongoDB, Django, and LLMs.
- Created a multiclass scope checker module that classifies questions and provides standard responses for out-of-scope questions.
- Developed a RAG pipeline with a question2mongo query generation module that prompts LLM models with extracted information from question and parameter mappings to generate mongo query required to retrieve custom user data.
- Utilized Weaviate DB as a caching system to cache templated queries and metadata to lower system latency and reduce API cost.
- Added few shot prompting and user-level feedback to improve query generation accuracy.
- Designed a text manipulator system that takes in users' transactional categories, subcategories, banks, payment modes, and merchants to create similar follow-up questions for user engagement.
- Built a state machine system that routes user questions to different modules based on question intent and conversation context.
- Integrated Grafana, New Relic, and Prometheus for logging and monitoring API requests and responses.

Research Engineer / SemaFor

SEP 2022 — FEB 2024

Artificial Intelligence Innovation Lab (A2IL)

Buffalo, New York

- Created a text+pose guided image generation system using latent diffusion models (ControlNet with Stable diffusion weights).
- Added noise and performed latent interpolation on best pair human face images to generate high-resolution morphs.
- Generated images at different noise levels and selected the best candidate by computing CLIP similarity scores for fixed prompts.
- Developed an image manipulation detection system to detect, localize, and label tampered parts in news articles. **Thesis**
- Trained a CNN model with a Resnet-50 backbone to detect jpeg compression errors in tampered images with 93% accuracy.
- Utilized NEDB-Net to extract noise and edge-based features to localize and get manipulation mask for the tampered regions.
- Fine-tuned a custom Yolo-v8 model to detect objects in the localized regions and classify them into 18 categories.
- Created analytic containers to detect image text inconsistencies in multimodal news articles.
- Developed a text-transformer tool to perform controlled named entity and parts of speech replacements in texts using SpaCy.
- Extracted text from images using Paddle OCR and developed contradiction and mismatch detection algorithms to detect inconsistencies between image text and news body.

Systems Engineer / Cummins

FEB 2018 — AUG 2020

Infosys

Bhubaneswar, Odisha

- Trained random forest model to classify dependent and independent parts for refrigeration systems with 97% accuracy.
- Developed a module to predict part prices using XGBoost regressor and integrated with CUMMINS part pricing system.
- Built API service using Django REST Framework to parse delegation data from files received in hourly batches.
- Developed employee task delegation system to manage production workflows and approvals using python.
- Reduced batch data transfer failure rate by 20% through automation and monitoring of batch jobs using RPA and Appworx.
- Managed deployment and maintenance pipelines for system availability and reliability using Jenkins and Git/Github.

EDUCATION

Master of Science in Computer Science & Engineering, University at Buffalo, New York, GPA - 3.72/4

AUG 2023

Bachelor of Technology in Mechanical Engineering, SRM University, Chennai, CGPA - 8.8/10

MAY 2017

PROJECTS

Player Re-Identification: Trained a dual branch network with appearance and body part features extracted from ResNet and OpenPose subnetwork as backbones, to re-identify soccer players in broadcast videos with 63% mAP. Used Python, PyTorch, OpenCV, Bilinear Pooling, Triplet Loss. **Paper**

Ear Hair-Cell Detection and Counting: Detected and extracted damaged inner and outer ear hair cells to measure deafness in animals. Used Python, Template Matching, Non-max Suppression, DBSCAN Clustering, Houghs Transform.