

Roksana Akter

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in Roksana Akter 🌐 Roksana18cse04 📧 Roksana25 🔗 Portfolio

Research Objective

Aspiring researcher in Artificial Intelligence and Robotics with a strong foundation in computer vision, multi-agent systems, and applied machine learning. My research interests include robotics perception, intelligent automation, and generative AI systems for real-world applications

Education

BSc in Computer Science and Engineering Gopalganj Science and Technology University ,Gopalganj, Bangladesh	2019 – 2024
• Cumulative GPA: 3.25 / 4.00	
Higher Secondary Certificate (HSC) Bhawal Badrul Alam Govt College ,Gazipur, Bangladesh	2016 – 2018
• GPA: 3.83 / 5.00	
Secondary School Certificate (SSC) Johura Khatun Girls High School ,Nandail, Mymensingh, Bangladesh	2011 – 2016
• GPA: 4.89 / 5.00	

Research and Project Experience

AI Team Lead & Lead Developer BETOPIA (SOFTVENCE - SISTER CONCERN)	Dhaka, Bangladesh Mar 2025 – Present
<ul style="list-style-type: none">• AI Strategy and Leadership: Led design, development, and deployment of AI pipelines across computer vision, NLP, and multi-agent systems while managing a cross-functional team.• InPrep-AI (Mock Interview Platform): Developed automated interview platform with video-based behavioral analysis, voice tone extraction, and transformer embeddings. Outcome: Personalized candidate feedback system.• Sports Game Prediction Engine: Built predictive ML models using Goalserve API (player stats, injuries, history). Outcome: Accurate game win predictions, lineup forecasts, and head-to-head insights.• Multi-Agent AI System: Created pipelines integrating image/video generation, TTS, chatbot, and vector database retrieval via FastAPI and MCP. Outcome: AI assistant framework for e-commerce automation.• Hair Shade Color Matching AI: Engineered segmentation and color matching system using ResNet/BSNet and K-Means clustering in LAB space. Outcome: Achieved 95• AI-Generated Ads System: Developed end-to-end ad creation combining GPT-4 for scripting, Stable Diffusion visuals, MusicGen audio, and Pydub mixing. Outcome: Automated ad creation pipeline for marketing teams.• Viral Clip Detection Engine: Implemented hybrid pipeline with SRT-based timing, scene detection, and audio analysis. Outcome: Extracted high-engagement clips for social media.• Ongoing RAG Projects: Leading development of retrieval-augmented generation systems and domain-specific generative chatbots.	
AI Research Developer (Independent Project) SUPERMARKET LEAFLET GENERATOR	Remote 2024
<ul style="list-style-type: none">• Developed AI-powered supermarket leaflet pipeline with logo, product images, and promotional text integration. Outcome: Ready-to-use leaflet designs for retail marketing.	

Computer Vision Researcher (Independent Project)

CAR WRAP DESIGN SYSTEM

Remote
2024

- Built car-part segmentation pipeline using YOLOv8 and FastSAM. Developed AI-generated sticker module for realistic wrap designs without altering geometry. Outcome: Scalable automotive design workflow.

Technical Skills

- **Programming Languages:** Python, C, C++, JavaScript
- **Machine Learning & Frameworks:** Scikit-learn, TensorFlow, Keras, PyTorch, FastMCP, XGBoost, LightGBM
- **Deep Learning Architectures:** CNNs, RNNs, Transformers, U-Net, SegFormer, Stable Diffusion
- **Computer Vision Tools:** OpenCV, YOLOv8, FastSAM, MediaPipe, FFmpeg
- **NLP & Embeddings:** Hugging Face, OpenAI API, NLTK, spaCy, SentenceTransformers
- **Vector Search & Retrieval:** FAISS, Pinecone, Weaviate (basic)
- **Developer Tools & Environments:** Git, Docker, Postman, Jupyter Notebook, Colab, VS Code
- **Data Engineering & Processing:** Pandas, NumPy, DVC, FastAPI, Streamlit, Airflow (basic)
- **AI Integration Platforms:** FastMCP, LangChain, LlamaIndex
- **Visualization & BI Tools:** Matplotlib, Seaborn, Plotly, Power BI
- **Cloud Platforms & DevOps:** Render, Vercel, Netlify, GitHub Actions, Azure (basic)

Training & Certifications

EDGE-BSMRSTUCSE — Digital Skills for Students
Dhaka, Bangladesh

May – Sep 2024

- Data Analysis with Python: EDA, hypothesis testing, ML pipelines

References

- **Saleh Ahmed** — Assoc. Professor, Dept. of CSE, BSMRSTU
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- **Md. Monowar Hossain** — Asst. Professor, Dept. of CSE, BSMRSTU
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