Sayak Dutta

MTech

Department of Computer Science and Engineering

[sayak.dutta@iitgn.ac.in](mailto:sayak.dutta@iitgn.ac.in)

+91 8918204955

# Education

|  |  |  |  |
| --- | --- | --- | --- |
| **Degree** | **Institution** | **CPI** | **Year** |
| MTech | IIT Gandhinagar | 8.58 | 2024-present |
| BTech | NIT Sikkim | 8.14 | 2020-2024 |
| Class XII | KV Salboni | 94.8% | 2019-2020 |
| Class X | KV Salboni | 94.2% | 2017-2018 |

**Internships**

# 

# Advanced Panorama Stitching System– ECIL May 2025 - Present

# Architected an end-to-end under-vehicle stitching pipeline (SuperGlue → RANSAC → cylindrical warp → bundle adjustment → blending) for robust real-time stitching.

# Implemented adaptive cropping (retaining 80–90% data), trapezium alignment with epsilon tuning, and cylindrical straightening for geometric consistency.

# Optimized global alignment via bundle adjustment, refining focal lengths and rotations to minimize reprojection error across multi-image sequences.

# Delivered ultra-high-resolution panoramas (20K+ px) with sub-pixel accuracy (≤5e-4 px error), validated using AUC@5/10/20 thresholds and precision metrics.

# Machine Learning Intern – FOXAIR Dec 2022 – Feb 2023

# Conducted Customer Churn Analysis for a telecom company, reducing churn rate by 15% and improving customer satisfaction through targeted retention strategies.

# Developed and deployed a Machine Learning model using XGBoost to predict Customer Lifetime Value (LTV), achieving over 91% accuracy.

# Utilized K-Nearest Neighbours (KNN) to cluster customer segments and optimize targeted marketing for high-value customers.

# Analysed historical data to identify customer behaviour patterns, resulting in strategies to enhance profitability and reduce losses from negative LTV customers.

# Delivered insights on customer retention and LTV, contributing to data-driven decision-making and business optimization.

# Thesis/Research

# Developed “UnCageNet,” a three-stage Gabor-enhanced segmentation and CRFill inpainting pipeline that removes cage occlusions, enabling state-of-the-art self-supervised tracking and pose estimation (STEP/ViTPose) to recover 11.6% OKS lost to occlusion on APT-36K synthetic tests, raising OKS from 0.734 to 0.812 and mAP@OKS from 0.582 to 0.730on 30-species benchmarks of APT36k, with real-time 45 ms per frame;.

# Introduced the first large-scale benchmark with 10 realistic cage geometries blended over APT-10K/AP-36K images via alpha compositing: 48,600 image–mask pairs; Work submitted at ICVGIP 2026.

# Projects

# Decision Tracker AI Agent – (Meeting Insights Application)

# Developed a modular AI application (Fast API + React) that analyzes meeting audio recordings to extract

# key decision insights using LLaMA 70B via the Groq API.

# Implemented Google Meet integration to connect, record audio, and save recordings directly to an audio folder.

# Enabled manual audio file uploads for analysis and insights extraction, enhancing user control over the process.

# Utilized FFmpeg, PyAudio, and Pydub for audio processing and transcription, ensuring high-quality audio analysis.

# Containerized the application with Docker for consistent deployment and environment management.

# AI-Powered Resume Analyzer and Optimizer Using Semantic Matching and RAG

# Developed a full-stack AI tool (Fast API + Streamlit) to analyze and optimize resumes against job descriptions.

# Engineered NER-based extraction with spaCy for structured skill data from resumes and JDs.

# Built a semantic-matching pipeline using SBERT and FAISS for ranking relevant skills.

# Implemented a RAG flow: chunked documents, embedded with sentence-transformers, and retrieved context for feedback using Groq’s Llama3-8B.

# Containerized the application with Docker for consistent deployment.

# Responsibilities

# CSE Branch Representative in CDS

# Served as a core member in Blithchron design team.

# Achievements/Awards

# National Taekwondo Player – Represented at the national level, demonstrating discipline, resilience, and competitive excellence.

# 

# Skill Summary

* **Languages:** Python, C, Matlab
* **Tools:** Git, GitHub, Docker, Matplotlib, TSFEL, PyTorch, Hugging Face, LLMs