SAMBIT MALLICK

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Google Scholar ◇ LinkedIn (sambitmallick) ◇ GitHub

EDUCATION

B.Tech in Electronics and Communication Engineering — Expected 2025
Heritage Institute of Technology, Kolkata, India
GPA: **9.67**

Class 12 and Class 10 — 2018 - 2021
Birla Bharati, Kolkata, India (CBSE)
Achieved **95.4%** in Class 12 and **95%** in Class 10

SKILLS

Languages: Python, C++
AI/ML: Segmentation, OpenCV, Computer Vision, NLP, Deep Learning, Machine Learning, Transfer Learning
GenAI Agent Frameworks: LangChain, LangFlow, CrewAI, PhiData, AutoGen, RAG, Graph RAG
MLOPs: DVC, CI/CD Pipelines, MLFlow **Tools:** Flask, Docker, AWS, Git, Jupyter, FastAPI ,Datastax , Google Colab

HACKATHON WINS

All India 2nd at ISRO - BHARTIYA ANTARIKSH HACKATHON 2024 — Aug 2024
Awarded by the Honourable President of India Smt. Droupadi Murmu on 1st National Space Day

- Developed the SHAKTI algorithm for detecting lunar craters and boulders in Chandrayaan-2 OHRC images, achieving over 90% accuracy in object detection and segmentation

WORK EXPERIENCE

GENAI/DATA SCIENCE TRAINEE — Feb 2024 - Present
SOMNETICS - SOM IMAGING INFORMATICS PVT LTD — *Kolkata, India*

- Working on Document parsing and understanding. Created AI Agents for Invoice Data extraction, Resume Shortlisting etc using LangGraph, LangChain, CrewAI, RAG etc.
- Worked on 5+ AI Agent RAG usecases utilising various LLM's and Agentic AI Systems.

AI Intern — Oct 2024 - Nov 2024
Space Application Center - ISRO (Indian Space Research Organisation) — *Ahmedabad, India*

- Working under the mentorship of ISRO scientists Dr.Aditya Dagar, Dr.Phani Rajasekhar and Dr.Rohit Nagori.
- Currently developing SHAKTI, an AI/ML algorithm with a detection accuracy of over 90% for automatic identification of craters and boulders in OHRC images, reducing manual annotation time by 70% and improving detection efficiency by 50%.

Machine Learning Research Intern — Jan 2024 - Jun 2024
Indian Institute of Technology Kharagpur — *Remote*

- Researched accident risk analysis using the Kolkata Police traffic dataset.

Generative AI Intern — Mar 2024 - Jun 2024
INNOVERV GLOBAL SOLUTIONS PVT LTD. — *Remote*

- Developed an AI-based masking and demasking tool for protecting sensitive SAP data in Excel files.

PUBLICATIONS

A Novel Approach to Breast Cancer Histopathological Image Classification Using Cross-Colour Space Feature Fusion and Quantum-Classical Stack Ensemble Method — 2024
Springer, ICADCML 2024

- Authors: Sambit Mallick, Snigdha Paul, Dr.Anindya Sen
- Link: https://doi.org/10.1007/978-981-97-1841-2_2

Advanced Descriptor Techniques for Quantum Enhanced Autism Spectrum Disorder Detection 2024
Springer ICIIOT 2024

- Authors: Sambit Mallick, Snigdha Paul, Debdeep Mitra, Jacob Vishal, Aniket Das, Rik Das
- Accepted and Successfully presented for publication

Exploring the Benefits of Ensemble Techniques involving MiDaS and MonoDepth2 Models for Monocular Depth Estimation 2024
IEEE, C3IT 2024

- Authors: Debdeep Mitra, Sambit Mallick, Snigdha Paul, Dr. Amlan Chakrabarti, Dola Gupta
- Link: https://doi.org/10.1109/C3IT60531.2024.10829443

Exploring the Efficacy of Partial Denoising Using Bit Plane Slicing for Enhanced Fracture Identification: A Comparative Study of Deep Learning Based Approaches and Handcrafted Feature Extraction Techniques 2023
IEEE, PuneCon 2023

- Authors: Snigdha Paul, Sambit Mallick, Dr. Anindya Sen
- Link: https://doi.org/10.1109/PuneCon58714.2023.10450051

Comparative Study of Multiple Deep Learning Algorithms for Efficient Localization of Bone Joints in the Upper Limbs of Human Body 2022
Springer ICCVBIC 2022 and 108th ISCA

- Authors: Soumalya Bose, Soham Basu, Indranil Bera, Sambit Mallick, Snigdha Paul, Saumodip Das, Swarnendu Sil, Swarnava Ghosh, Anindya Sen
- Link: https://doi.org/10.1007/978-981-19-9819-5_46

PROJECTS

Medical AI Chatbot Langflow, Streamlit, Groq API
Developed an intelligent AI-powered chatbot delivering precise, real-time responses to complex medical queries, enabling better support for healthcare professionals and patients.

- Integrated a Retrieval-Augmented Generation (RAG) system to ensure AI agents provide accurate and context-aware medical insights.
- Demo : Demo

Skin Disease Detection Platform Python, YOLOv8, Flask
Developed a web-based diagnostic tool achieving 93.8% accuracy in skin disease detection, enabling early and effective treatment.

- Utilized an ensemble of CNN models and YOLOv8 to ensure high diagnostic precision and robustness.
- Utilised LLama 2 to create a Knowledge Hub integrated in the website.
- Delivered an intuitive platform, empowering both clinicians and patients to make informed decisions.
- Github : GitHub

FashionAI: Innovating Fashion Trends Stable Diffusion, ControlNet
Created an AI-powered solution to revolutionize fashion trend forecasting and design, bridging creativity and technology.

- Integrated generative models with NLP for precise prediction of emerging fashion trends.
- Enabled designers to rapidly prototype concepts using automated design generation tools.
- Utilised multiple diffusion models to create accurate products with human feedback
- Github : GitHub