Contact

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https://www.linkedin.com/in/uddipan-basu-bir/

https://github.com/uddipan77

https://huggingface.co/Uddipan107

https://hub.docker.com/repositories/uddipanbb

Technical Skills

Programming Languages & Databases

- Python, SQL, Unix Shell Scripting, TypeScript

Machine Learning & Deep Learning Frameworks

- PyTorch, PyTorch Lightning, Scikit-learn, XGBoost, statsmodels

Data Validation, Model Serialization

- Pydantic , ONNX

LLM/NLP/AI Tools & Libraries

- Hugging Face Transformer, LangChain, LangGraph, GroqCloud, LLaMA-Factory, NLTK, spaCy, vLLM

Cloud & High Performance Computing

- Azure Machine Learning, Azure AI Foundry, Azure OpenAI, Azure Blob Storage, HPC

Experiment Tracking, MLOps, HPO

- MLflow, Weights & Biases (WandB), Tensorboard, Optuna, ZenML

Web Frameworks & Deployment

- Docker, GitHub Actions, Streamlit, Fast API, Flask

Data Visualization & BI

- PowerBI, Power Automate, Power Apps

Uddipan Basu Bir

M.Sc. Data Science

Academic Experience

Oct 2022 - Present

Friedrich-Alexander-Universität Erlangen-Nürnberg
Erlangen, Germany
M.Sc. Data Science, specialization in AI & ML

Courses

- Deep Learning – 2.7
- Pattern Recognition – 1.3
- Advanced topics in Deep Learning – 1
- Machine Learning in Signal Processing – 1.7
- Machine Learning in Time Series – 2.3

Master Seminar Project
Analysis of Continuous Manufacturing Sensor Data for polymer extrusion process – 2.0
REHAU & FAU

Main Activities :

- Forecasting key process parameters.
- Detected anomalies using Autoencoders
- Analysis of relationship between sensor parameters.
- Used Python, XGBoost, ARIMA, LSTM (TSAI), Autoencoders, Flask

Master Thesis (Ongoing)
Structured Text Extraction from Images using Vision-Language Models

Fine-tuning multimodal and OCR-based VLMs (with PEFT - LoRA, QLoRA, Unsloth) to extract text in a structured manner from historical handwritten and printed industrial records; conducting comparative model analysis.

Jun 2014 – Jul 2018

Maulana Abul Kalam Azad University of Technology
Kolkata, India
Bachelor of Technology,
Computer Science & Engineering , Grade : 1.95 (180 ECTS)

Bachelor Thesis

- https://github.com/uddipan77/Emotion-Detection-Through-Facial-Expressions

Work Experience

May 2025 – Current

Working Student – Applied AI Engineer
Siemens AG
Germany

Responsibilities :

- Currently developing an AI agent capable of performing question answering directly from Excel data.

Tools & Technologies : Azure Machine Learning, Azure OpenAI, LangChain, PyTorch, Azure Cosmos, Azure AI Search

Awards & Achievements

Times NIE Science Project Competition - 2012
Secured third position representing my school for the competition

Certifications & Courses

- The Data Science Course: Complete Data Science Bootcamp, Udemy.
- JAVA training Project by IIT Bombay,2016
- Generative AI Fundamentals, Databricks

Hackathons

AI Natives Hackathon 2024
Iba GmbH & BEST Erlangen
Objective
- Anomaly Detection in time series sensor data
- Development of end to end AI enabled wed application

Language

- English - Fluent
- German – A2
- Bengali - Native

June 2024 – April 2025

Working Student - Data Analyst
Schaeffler
Germany

Responsibilities :
- Development of interactive Microsoft PowerBI dashboards for BOM and Financial Data.
- Data wrangling , preprocessing and data modeling.
- Creation of power automate flows integrated with Microsoft 365 (including Microsoft PowerApps).

Sep 2021 – Jun 2022

Data Engineer
Tata Consultancy Services
Kolkata, India

Responsibilities :
- Development of ETL data pipelines in Ab-initio
- Managed Autosys jobs for data extraction, preprocessing, and loading.
- Optimized SQL queries for data integration.

Tools & Technologies : Python, Unix, Autosys, Ab-initio, SQL Indexing, Window Functions, CTEs, SQL Procedures, ServiceNow, PowerBI

Sep 2018 – Aug 2021

Data Analyst
Tata Consultancy Services
Kolkata, India

Responsibilities :
- Design and maintain efficient data pipelines, dashboards, and analytics solutions to support decision-making.
- Experienced in financial data analysis including MRR, ARR, and P&L reporting.

Projects Involved

1. AI Application Research Project, Computer Vision – Institute for Factory Automation and Production Systems (FAPS Lab), June 2025 – June 2026

Developed a multi-modal multi-view multi-task deep learning pipeline for classification of quality monitoring in industrial manufacturing.
GitHub - https://github.com/uddipan77/AI-FAPS-Multi-Modal-View-Task-Pipeline

A Comparative Assessment of Self- and Semi-Supervised Learning as well as Combined Approaches for Deep Learning Based Image Classification in Industrial Visual Inspection of Electrical Motor Manufacturing.
GitHub - https://github.com/uddipan77/ai-faps-self-semi-combined-dl-pipeline-industrial-inspection

2. Optical Character Recognition Based Document Image Machine Translation of Inventory Management Data - International Conference on Document Analysis and Recognition & Friedrich-Alexander-Universität Erlangen-Nürnberg

Reordered OCR-extracted inventory management text into proper reading order and translated it to Chinese, evaluating translation quality with BLEU score.
GitHub - https://github.com/uddipan77/OCR-to-Machine-Translation

3. Generative AI driven Cold Email Generator Tool

Tools and Technologies used : Llama3.1 open source LLM, chromadb (vector store), Langchain and streamlit, Groq Cloud.
GitHub - https://github.com/uddipan77/generate_email_with_llm