# Sushant Twayana

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Computer Engineering graduate specializing in **Data Science, Machine Learning, and AI**. Experienced in **end-to-end ML development** from **data preprocessing** to **model deployment**. Strong analytical problem-solver with excellent communication skills, passionate about leveraging AI technologies to deliver innovative solutions.

## PROFESSIONAL EXPERIENCE

**Junior AI/ML Engineer | VANILLA TRANSTECHOR** *(July 2025 - Present)*
**Core Technical Achievements:**

- Developed end-to-end multilingual speech processing pipeline: Speech → Whisper transcription → Custom translation models (Multilingual to English) → **Rasa** intent classification
- Researched and benchmarked speech recognition technologies including Whisper variants and **AWS** cloud solutions to optimize pipeline performance and accuracy with **FastAPI** backend
- Built and fine-tuned custom translation models ensuring seamless integration across the processing workflow
- Deployed production-grade system on **AWS EC2** with comprehensive optimization for scalability and performance
- Worked collaboratively **Fraud Detection** of the real time fintech data.

**Associate Data Scientist | DLytica – Data Analytics and AI** *(Dec 2024 - Apr 2025)*
Delivered comprehensive end-to-end machine learning solutions in a production environment, specializing in **MLOps** implementation and AI-driven applications. Led the development of a sophisticated banking recommendation system for fixed deposits, architecting scalable data pipelines using **Trino, MinIO**, and **Kubeflow** for real-time inference capabilities.

- Designed and deployed enterprise-grade **MLOps pipelines** leveraging **Kubernetes** and **Docker**, establishing robust CI/CD frameworks for automated model versioning and deployment
- Developed high-performance applications using **TensorFlow and PyTorch**, integrating **FastAPI** and KServe for scalable model serving
- Architected intelligent conversational AI systems utilizing **LangChain**, **RAG** (Retrieval-Augmented Generation) architecture, **vector databases**, and autonomous **agent frameworks**
- Implemented advanced big data processing workflows with **PySpark** and **Apache Superset** for sophisticated feature engineering and predictive analytics

**Data Science Training Assistant:** Served as Training Assistant for DLytica Academy's Data Science programs, contributing to curriculum development and providing technical mentorship to aspiring data scientists.

**AI/ML Engineer Intern | Comfort Yantra** *(July 2024 - October 2024)*

- Architected intelligent conversational AI systems using **RAG** architecture with **LangChain**, **FastAPI**, and **GPT-3.5 Turbo**, including customer service chatbots with Chroma vector store integration and document-based appointment booking functionality
- Developed hybrid automation solutions combining **LLM-powered** and regex-based approaches for e-commerce product categorization, web scraping integration, and natural language to SQL translation systems
- Integrated multiple AI models including **Azure OpenAI** and **Meta-LLaMA-3-8B** for advanced semantic parsing, automated content processing, and multi-tool agent architectures

## ACHIEVEMENTS

- **Winner of ProtoBytes Hackathon at ACEM 2024**: Developed innovative AI solutions under tight deadlines.
- **Participant in SXC Sandbox 2.0 48-Hour Hackathon**: Collaborated with teams to solve realworld problems using data-driven approaches. **Leadership & Extracurricular Activities**
- **Organized Hult Prize Event 2022/23**: Led a team to successfully execute a large-scale event, showcasing leadership and organizational skills
- **Associate at ITSNP**: Contributed to technical and community-building initiatives.

## STREAMLINED PROJECTS SUMMARY

**MLOps & Deployment Solutions**
- Built and deployed an **MNIST digit classification pipeline using Kubeflow, integrating FastAPI and KServe for** scalable inference with automated CI/CD workflows
- Implemented clustering algorithms for **banking domain customer segmentation** with hyperparameter optimization

**AI-Powered Financial Applications**
- Engineered a **fixed deposit recommendation** system using **PySpark** and ML models, with **Apache Superset** for feature engineering.
- Developed robust stock price forecasting models employing time-series analysis and deep learning methodologies

**Computer Vision & Generative AI**
- Created a hybrid deep learning model combining **ResNet50** and **YOLOv8** for Newari food detection and classification.
- Implemented "Imagin Face", a text-to-human face generation system using **DC GAN** and **DF GAN** architectures with PyTorch.
- Developed a **Food Image to Recipe Generation and Ingredients Extraction** Model utilizing EfficientNet-B0, BLIP Transformer and T5 Transformers.

**NLP & Conversational AI**
- Architected **production-grade intelligent chatbots** using **RAG, LangChain, vector databases,** autonomous agents and **Dialogflow** for Newari Food Assistant also **conversational AI system**

- Created a **content-based movie recommender** using NLP techniques, embedding models, and cosine similarity algorithms
- Developed a **news summarizer** and **sentiment analysis** tool using newspaper3k, Sumy, and TextBlob.

**Data Science | Web Scrapping**

- Performed **Web Scrapping** using **Beautiful Soup, Selenium** and extracted meaningful products.
- Conducted exploratory **data analysis on diverse datasets**, including Airbnb market trends and Los Angeles crime data.

## KEY SKILLS

- **AI/ML Skills**: Python, Machine Learning Algorithms, Deep Learning (TensorFlow, PyTorch), Computer Vision, NLP, LLM, LangChain, RAG, PySpark, XGBoost, LightGBM, Scikit-learn
- **MLOps & Deployment**: Model Deployment, CI/CD Pipelines, Docker, Kubernetes, FastAPI, KServe, Kubeflow, Cloud Platforms, Model Monitoring
- **Data Engineering**: Data Preprocessing, ETL Pipelines, SQL, NoSQL, Pandas, NumPy, Dask, Apache Superset, Trino, MinIO, Spark
- **Data Science**: Statistical Analysis, Data Visualization, Model Evaluation, Feature Engineering, Hyperparameter Tuning, A/B Testing, Exploratory Data Analysis (EDA)
- **Soft Skills**: Analytical Thinking, Problem Solving, Team Collaboration, Leadership, Effective Communication
- **Tools & Technologies**: Python, SQL, Git, Flask, FastAPI

## EDUCATION

**Bachelors in Computer Engineering**
**Khwopa Engineering College** *(Oct 2019 – Aug 2024)*: **3.50 CGPA**

## CERTIFICATIONS

- **Associate Data Scientist in Python Certification** (DataCamp)
- **PyTorch and Keras (TensorFlow) Full Course**: Deep Learning for Images and Text with PyTorch
- Various Certifications from DataCamp

## ACHIEVEMENTS

- **Best Presenter Award** at KU IT FEST 2024
- **1st Runner Up** at Hult Prize on Campus Event 2024
- **Winner of ProtoBytes Hackathon at ACEM 2024**