SHASHANK SHEKHAR SHUKLA

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OBJECTIVE

Aspiring Data Scientist with experience in Machine Learning, NLP, and Computer Vision, seeking full-time roles in AI and Data Science.

EDUCATION

Bachelor of Technology in Mining Machinery Engineering, IIT (ISM) Dhanbad — Dec 2021 - May 2025
GPA: 8.12 / 10.00 — Dhanbad, Jharkhand
Relevant Coursework: Automation and Control (A grade), Deep Learning (Python, A grade), Parallel Computing, Wireless Networks

SKILLS

Machine Learning	Pytorch, Tensorflow, Pandas, Numpy, OpenCV, Vector Database, RAG
Programming Languages	Python, C/C++, SQL
Developer Tools	Git, GitHub, Linux, Google Cloud, Docker, MS Excel, Snowflake, Databricks

EXPERIENCE

Data Scientist Intern — Jan 2025 - Present
Swiggy — *Remote*

- Automated the complete pipeline for fetching updated Swiggy Dineout menu images and verifying whether a new image has been added. If added, inference is performed; if modified, older logs are removed from the database and new inference is executed; once an image's status is removed, the image data is permanently deleted from the database.
- Processed 3 million rows from a Snowflake table to extract menu images displayed on Swiggy dine-out pages.
- Developed an OCR pipeline to extract text from restaurant menu images using Databricks and PySpark.
- Processed extracted text to improve restaurant recommendations based on menu content.

Machine Learning for Science - Google Summer of Code (CERN) — May 2024 - September 2024
Remote

- Built a Masked Autoencoder-based Channel Former with channel-specific multiheaded attention and depthwise convolution (1.21M-19M params) to compress boosted top quark (400GeV) data from the CMS at the LHC.
- Processed 4 million samples (2M signal, 2M background) with 8-channel images (dz, track_pt, Ecal, Hcal, etc.).
- Engineered a preprocessing pipeline applying pixel suppression, z-score normalization, outlier clipping, and min-max scaling, achieving 0.97 AUC Score (Linear Probing) and 0.98 AUC Score (Fine-Tuning).

Deep Learning Research Intern — May 2024 - July 2024
Tata Consultancy Services — *Remote*

- Developed an LLM-based chatbot for querying manufacturing datasets.
- Fine-tuned Phi3-128k, OpenELM, Phi3-4k, and LLaMA2-7B using PEFT and LoRA techniques.
- Improved chatbot response accuracy, achieving an F1 score of 78% (up from 47% in baseline models).

Autonomous development of Load Haul Dump Machine Aug 2023 - October 2023
NVCTI, IIT DHANBAD *IIT ISM*

- End-to-End automation of Load Haul Dump Machine processes using robotics and ML algorithms to increase productivity.
- Developed Pure Pursuit Controller for Path Tracking with 81% accuracy.

KAGGLE (1 SILVER AND 2 BRONZE MEDALS)

Kaggle Competiton Expert
Kaggle LLM Science - Silver Medal - 75th Position among 2800 teams
NeurIPS - LuxAI season 3 - Bronze Medal - 60th Position among 1500 teams
UBC-OCEAN Cancer Classification - Bronze Medal - 83rd Position among 1600 teams
CIBMTR - Equity in Post-HCT Survival Predictions - 155th rank.
AI of GOD Challenge - 18th rank.

HONORS AND ACHIEVEMENTS

- Google Summer of Code 2024 (Top 0.001% globally).
- 28th rank in Amazon ML Challenge.
- 15th rank in AI Agent 007 Challenge (Inter-IIT).
- GATE 2025 Data Science (AIR 1503).
- Published article: *Masked Autoencoders for CMS Experiment.*
- Founding Member and Mentor at AI Club, IIT (ISM) Dhanbad.

PROJECTS

Neural Lux-Bots
Pytorch, Python, Scipy
Designed a decentralized multi-agent reinforcement learning system using Deep Q-Networks (DQN) and ResNet18-based feature extraction to enhance spatial awareness in dynamic environments. Integrated game-theoretic concepts by modeling Q-values as payoffs in Nash equilibrium settings, enabling agents to make stable and coordinated decisions despite non-stationarity. Implemented a custom reward function to optimize agent cooperation and competition.
Project Link

Cross-City Generalizability of Instance Segmentation Model in a Nationwide Building Extraction Task
Pytorch, Python
Developed a U-Net-based semantic segmentation model with a ResNet50 encoder and Atrous Convolutions for multi-scale feature learning. Designed a custom loss function (BCE + Dice Loss) to handle class imbalance achieving an IoU score of 0.89, overcoming challenges in automatic building footprint detection across varied landscapes.
Project Link

AI Agent 007: Tooling up for Success
Pytorch, Python, RAG, Vector Databases (Chroma DB)
Built an AI Agent leveraging RAG (10M params model, all-minilm-l6-v2 as Encoders) with a Chain of Thought to enhance domain-specific question answering, achieving 600ms inference time.
Project Link

LEADERSHIP AND TEACHING EXPERIENCE

- Founding member and mentor at AI Club, IIT (ISM) Dhanbad, fostering Machine Learning excellence.