Kushagra Parashar

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Education

ABV-Indian Institute of Information Technology & Management — Gwalior, MP
Integrated B.Tech (IT) + MBA — CGPA: 7.75/10.0 — *May 2027*
- **Coursework:** Data Structures & Algorithms, Machine Learning, Deep Learning, NLP, Statistics, Linear Algebra

Experience

Firstbench — Remote
Machine Learning Engineer & Founding Team Member — *Oct 2024 – Feb 2025*
- Led the design and deployment of an **AI-driven personalized learning platform** for 10K+ UPSC aspirants, improving content recommendation accuracy by **80%** through transformer-based NLP and collaborative filtering.
- Engineered **scalable end-to-end MLOps pipelines** for automated question generation, semantic tagging, and adaptive learning, optimizing inference latency and ensuring robust production readiness.

Fox Trading — Remote
Machine Learning Intern — *Oct 2023 – Nov 2023*
- Developed and backtested **quantitative trading algorithms** using ensemble learning and statistical arbitrage, increasing predictive performance by **40%**.
- Performed **time-series forecasting, feature engineering, and anomaly detection** on large-scale financial datasets to enhance model interpretability and execution efficiency.

Projects

SmolWhisper — Lightweight Multilingual ASR | *PyTorch*, *HuggingFace*, *FlashAttention*, *DDP*, *WGAN*
- Developed a high-efficiency **Whisper-Tiny (30M)** ASR model trained on **250+ hrs GigaSpeech** using multi-GPU Distributed Data Parallel (DDP).
- Enhanced training stability via **WGAN-based data augmentation** and **FlashAttention**, achieving 35% faster convergence and reduced compute overhead with bfloat16 precision.
- Integrated scalable pipelines for multilingual speech recognition and noise-robust transcription.

Loan Prediction MLOps Pipeline | *FastAPI*, *AWS EC2*, *Docker*, *Jenkins*, *CI/CD*
- Designed an end-to-end **MLOps pipeline** automating model retraining, validation, and deployment via **Jenkins** .
- Containerized the FastAPI microservice using **Docker**, orchestrated deployments on **AWS EC2**, and implemented robust monitoring with 99.9% uptime.
- Integrated version-controlled workflows ensuring reproducibility, traceability, and automated rollback safety.

PyOS — Command-Line Operating System | *Python*, *CLI Design*, *Authentication*
- Developed a modular **command-line OS simulator** with secure user authentication, color-coded shell interface, argument parsing, and extensible command sets, ensuring minimal dependencies and easy extensibility.

Research

Data Augmentation for Breast Cancer Imaging using WGANs: Applied **Wasserstein GANs with label smoothing** to generate synthetic medical images, tripling limited datasets and improving robustness in cancer detection models (ongoing).

Interpretable Deep Learning for GI Endoscopic Image Classification, *Biomedical Physics & Engineering Express* (IOP Publishing): EfficientNet with Grad-CAM and LIME for transparent multi-class diagnosis

Achievements

- **Winner — HackBytes 2.0, IIIT Jabalpur:** Developed *Skin Sprite*, an AI-powered dermatology analysis system that surpassed existing solutions in diagnostic efficiency (</> Devfolio).
- **Winner — TechMinds Hackathon, IIT Janakpuri:** Created *DermaPixie*, a computer vision model achieving **98.5% diagnostic accuracy** in skin lesion classification (</> Devfolio).

Technical Skills

Languages: Python, C++, C, SQL, Bash
ML/AI: PyTorch, TensorFlow, Scikit-learn, HuggingFace Transformers, Keras, OpenCV, NLTK, SpaCy
MLOps & Cloud: Docker, Kubernetes, Jenkins, AWS (EC2, S3, Lambda), FastAPI, Flask, Git, DVC
Specializations: Deep Learning, NLP, Computer Vision, GANs, Time-Series Analysis, Model Optimization