KAIVALYA KISHOR DIXIT

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Education

M.Sc. in Data Science | ***New Jersey Institute of Technology*** *MAY 2025*
GPA: 3.95/4.0
Course Work: Deep Learning, Applied Statistics, Big Data, Database Management Systems, Time Series Analysis and Forecasting, Reinforcement Learning, Applications of Parallel Computing, Python and Mathematics, Time Series Analysis and Forecasting

Bachelor Of Technology in Electrical and Electronics Engineering | ***Mahindra Ecole Centrale*** *JUN 2023*
GPA: 3.54/4.0

Skills

Programming Languages: Python | Java | JavaScript | C/C++ | HTML/CSS | Shell Scripting | Assembly | LaTeX | TypeScript
Machine Learning & AI: PyTorch | TensorFlow | Scikit-learn | Keras | XGBoost | OpenMP | MPI | CUDA | LangChain | LlamaIndex | OpenAI Gym | Natural Language Processing (NLP) | Deep Learning | Neural Networks | Transformers | CNNs | RNNs (LSTM/GRU) | Transfer Learning | Ensembling | Multimodal Learning | AutoML | Time Series Analysis | Reinforcement Learning
Data Engineering & Analytics: SQL | Apache Spark | PySpark | Hadoop | Pandas | NumPy | MapReduce | Hive | MongoDB | ETL/ELT Pipelines | Data Warehousing | Data Lake | Feature Engineering | Statistical Analysis | Big Data | Tableau | Matplotlib | Seaborn | Plotly
Cloud & DevOps: AWS | Docker | Apptainer | Git/GitHub | Databricks | MLflow | Weights & Biases | CI/CD | Containerization
Frameworks & Tools: React | Next.js | Node.js | Flask | Streamlit | Spring Boot | REST APIs. Material-UI | Tailwind CSS | Bootstrap | SLURM | HPC Systems
Databases: PostgreSQL | MySQL | MongoDB | Redis | Data Modeling | Database Design | Query Optimization

Experience

HPC User Support Specialist | ***New Jersey Institute of Technology*** *SEP 2024 – MAY 2025*

- Catalyzed research productivity for 400+ researchers via expert management of PyTorch/Conda environments, Docker containerization, and strategic GPU/CPU optimization across a hybrid cluster infrastructure.
- Orchestrated a SLURM-based benchmark suite to oversee node health using Python and Bash, diminishing manual checks by 80% and escalating cluster uptime by 200 hours quarterly.
- Built a Raspberry Pi-based HPC testbed for pre-deployment validation, lowering production cluster deployment risks by 30% through iterative testing.

DATA ANALYST | ***Dassault Systemes*** *JAN 2023 – DEC 2023*

- Developed scalable Java ETL pipelines for 15+ SaaS product streams, processing enterprise-scale customer lifecycle data and supporting GDPR compliance across EU/NA teams, ensuring international regulatory standards.
- Designed and launched interactive dashboards for license conversion tracking with J2EE/Spring backends, improving decision-making efficiency by 25%.
- Automated data quality checks with SQL window functions and constraints, increasing pipeline reliability and reducing data inconsistencies by 40%.

Projects

DISTRIBUTED MACHINE LEARNING FRAMEWORK | C++, OPENMP, CUDA, MPI, PYTHON, PYBIND *MAR 2025 –MAY 2025*
Custom-Distributed-Machine-Learning-Framework.git

- Developed and optimized a parallel data ingestion pipeline using C++/OpenMP with thread-safe batch retrieval and parallel normalization, achieving a 12.6x throughput improvement over PyTorch DataLoader (193K vs 15K samples/sec) on the MNIST benchmark, enabling faster training iteration cycles for distributed workloads.
- Engineered custom CUDA kernels for neural network operations including tiled matrix multiplication with shared memory optimization, ReLU activation, and softmax cross-entropy loss, integrated with cuBLAS for GPU-accelerated forward/backward passes and CUDA streams for asynchronous execution.
- Implemented efficient multi-GPU gradient synchronization using CUDA-aware MPI with MPI_Allreduce for all-reduce operations and OpenMP-parallelized gradient averaging, building a comprehensive benchmarking suite that demonstrated 14x faster batch processing compared to equivalent PyTorch implementations.

FAIRSHARE - BILL SPLITTING WEB APPLICATION | NEXT.JS, REACT, PYTHON, PRISMA, DOCKER NOV 2024 – PRESENT
FairShare.git | *fairshare.kaivalya.dev*

- Architected a full-stack receipt scanning application integrating a hybrid LLM pipeline with Ollama (local) as the primary model and Perplexity API as fallback, reducing external API costs by 90% while maintaining extraction reliability for diverse bill formats.
- Engineered a penny-perfect bill splitting algorithm using the Largest Remainder Method to ensure mathematically fair distribution of shared expenses, with proportional tax/tip allocation and custom portion support for partial item claims.
- Developed a Python microservice leveraging Docling for intelligent OCR and table extraction from PDFs and images, paired with a Next.js 16 frontend featuring real-time collaboration via shareable bill links and Docker containerization for seamless self-hosting deployment.

LMAN - AI-POWERED UNIX MANUAL ASSISTANT | PYTHON, NLP, RAG, CLI DEVELOPMENT *MAY 2025 – PRESENT*

lman.git

- Developed a CLI tool leveraging Retrieval-Augmented Generation (RAG) with sentence-transformers and FAISS vector indexing* to enable natural language querying of Unix man pages, achieving semantic search across thousands of command chunks with sub-second retrieval latency.
- Engineered a multi-provider LLM integration layer* supporting Perplexity, OpenAI, Anthropic, Groq, and local Ollama inference, with intelligent fallback from keyword-based matching to API calls and real-time token usage/cost tracking for transparency.
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QUANTITATIVE PORTFOLIO SIMULATOR | PYTHON, PANDAS, NUMPY, MATPLOTLIB, SEABORN *FEB 2024 – APR 2024*

Quantitative_Portfolio_Simulator.git

- Visualized strategy results against a synthetic tech index benchmark using matplotlib dual-axis plots with percentage change normalization, enabling comparative performance analysis that revealed strategy-dependent returns ranging from -4.8% to +7.6%.
- Developed and implemented 3 algorithmic trading strategies (momentum, contrarian, and trend-following) with configurable 5-day rebalancing cycles on a $5M virtual fund, incorporating automated dividend detection via Close/Adj Close ratio analysis and reinvestment calculations across 250 trading days.
- Engineered a data pipeline consolidating 10 stock datasets and FX rates into an aligned time-series structure, including OHLC and Adjusted Close handling, and integrated a daily USD/JPY FX conversion system for accurate JPY-denominated performance tracking.

Certifications

- NVIDIA Deep Learning Institute – Building RAG Agents with LLMs 2025
- Kaggle Introduction to Machine Learning 2022