

AKSHAT KAUSHAL

Masters in Computer Science at University of Pennsylvania, Philadelphia, USA

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EDUCATION

University of Pennsylvania

Philadelphia, PA, USA

Master of Science in Computer and Information Science (Conc. Artificial Intelligence) **GPA: 3.88/4.0**

May 2026

Relevant Coursework: Advanced Topics in Deep Learning, Computer Vision, Machine Learning, Big Data Analytics, Data Structures

Thapar Institute of Engineering and Technology

Patiala, PB, IN

Bachelor of Engineering, Computer Engineering, **GPA: 9.26/10**

Jun 2022

TECHNICAL SKILLS

Programming: Python, SQL, Java, Javascript, C++, Kotlin, React.js

Tools and Frameworks: Pytorch, Scikit Learn, PySpark, JAX, LangGraph, PydanticAI, AWS, Unix/Linux, Git, Docker, CI/CD

Software Engineering: Spring, JavaScript, HTML, CSS, Selenium, Jest, JUnit, MLOps, Splunk, Armada, Prometheus, Grafana

WORK EXPERIENCE

Adobe | Software Engineering Intern

San Jose, CA, USA | May 2025 - Aug 2025

- Created Graph of Thought algorithms for Agentic-AI Journey Graph generation, enabling marketers to translate natural-language into personalized Digital Experience campaigns with integrated guardrails via A2A and MCP protocols, LangGraph and Pydantic AI.
- Developed intent matching, scoring, and terminology-expansions tailored to Graph-of-Thought models, leveraging FastAPI to inject business context and activate AI workflows through reasoning engine, enhancing Journey Graph scoring and relevance by 34%.

University of Pennsylvania | Researcher- Predictive Intelligence Lab

Philadelphia, TG, IN | Jan 2022 - May 2024

- Single-handedly developed a **JAX implementation** of Microsoft's **1.3B Aurora** Earth model, converting massive PyTorch weights and code into a **GPU-optimized** with **mixed-precision training, checkpointing, and kernel fusion** for efficient model training.
- Engineered parameter-efficient fine-tuning pipelines with **LoRA integration** and **multi-step autoregressive training**, managing terabytes of ECMWF data through **hybrid PyTorch-JAX dataloaders** while reducing memory footprint by 40%.

Salesforce | Member of Technical Staff

Hyderabad, TG, IN | Jul 2022 - Jul 2024

- Contributed to building Next-Gen Personalization Platforms by designing type system databases, CRUD, validation layers, and data mapping with **Data Cloud**, handling **200K events per second**, leading to **40%+ adoption** and enhanced personalized experiences.
- Researched and devised mechanisms to track adoption metrics for new products in the Experience Cloud, integrating **unsupported type systems** through validation layer **instrumentation** and cross-referencing with Salesforce **Unified Data Dictionary**.
- Implemented performance tests using **EKG and Armada frameworks**, providing critical insights into optimizing client-side caching, improving code change efficiency, and detecting slow processes, resulting in a **24% increase in overall product performance**.

Oyo Rooms | Data Science Intern

Gurugram, HR, IN | Jan 2022 - Jun 2022

- Productionized MLOps pipelines using **PySpark, AWS, and CatBoost** for booking prediction, processing 6M+ data points. Improved view-to-stay conversion by **8%** through calibrated classifiers, feature importance analysis, and **personalized payment optimization**.
- Designed complex data extraction workflows using **SQL, Hive, and PyHive** from OYO's **Metabase Infrastructure**. Applied hyperparameter tuning, **advanced data augmentation**, and Platt scaling calibration using Python, Scikit-learn, and **MLOps**.

Thapar University | Research Intern

Patiala, PB, IN | Mar 2021 - Aug 2021

- Implemented a brain tumor segmentation and survival prediction framework for **4D-MRI voxels of the BraTS20 dataset** on NVIDIA DGX, **securing 32nd place achieving a 2.7% performance improvement** over existing models through optimized architecture.
- Proposed an ensemble model with 3D U shaped fully convolutional and pre-trained 2D residual networks, enhancing feature extraction using AWS S3 for efficient data handling, outperforming traditional models with a **15% reduction in training time**.

PERSONAL PROJECTS

Distributed Deep Learning Network for 3-Dimensional Mapping

Philadelphia, PA, USA | Oct 2024 - Dec 2024

- Introduced a neural network training inspired by the DiNNO framework, developing advanced **CADMM-based** optimization techniques and **weight-averaging consensus methods** to balance local and global model learning objectives effectively.
- Evaluated implementations on MNIST and 2D mapping tasks, **extending to 3D scenarios** while systematically tackling challenges in scalability, convergence, communication efficiency, and distributed training system implementation complexities.

Vision Based Auto Zooming Cameraman [Github Link](#)

Philadelphia, PA, USA | Sep 2024 - Dec 2024

- Engineered an AI-powered autonomous camera system that adjusts zoom and focus in real-time for sports recording using a YOLOv11 model for object detection, Gaussian blur operations for heatmap generation, and temporal smoothing algorithms.
- Designed and integrated advanced post-game analysis features, including automated player clustering, team movement heatmaps, ball possession analysis, and frame-wise action visualization through an interactive dashboard to match statistics and gameplay dynamics.

PUBLICATIONS

Singhal, K., Sood, K., Kaushal, A., Gehlot, V., Rana, P.S. (2024). Analysis of Effectiveness of Indian Political Campaigns on Twitter. https://doi.org/10.1007/978-3-031-56700-1_17