

ABHIGYAN ACHERJEE

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SKILLS

Language/Libraries: Python, C++, SQL, Bash, Pytorch, DoubleML, Spacy, Pandas, NumPy, Nltk, Java.
GenAI/ML-Ops: LLM Evaluation, Benchmarking, LLM-as-a-Judge Systems, RAG, AWS Textract, Prometheus, Grafana, EvidentlyAI, DVS, GitHub actions, Git LFS, Docker, MLE Agents, MLFlow, FastAPI.

PROFESSIONAL EXPERIENCE

Machine Learning Engineer | Georgetown University-AI, Analytics, FoW Aug 2025-Present

- Designed improvements for auto-research agents, identifying failure modes in feature engineering, hyperparameter tuning, and search strategies, reducing timeouts by **54.5%**. (Capital One AI Foundations)
- Developed benchmarking and quality assessment pipelines for MCP systems, including evaluation metrics and structured audit signals for agent performance. (C-Data Inc).
- Deployed a scalable RAG system using AWS Textract, preserving document structure, improving recall@5 from **76% to 91%** through layout aware chunking and metadata preservation.

Machine Learning Engineer Intern | Columbia University-Data Science Institute Jun 2024-May 2025

- Engineered a variational auto-encoder pipeline that was able to cross-match **80% of anomalies** with known objects of interest.
- Used unsupervised clustering to demonstrate adherence controls reduced group heterogeneity by 67%, isolating adherence as the dominant driver of outcome variance on a policy analysis project.
- Applied statistical evaluation and clustering techniques to evaluate data quality and isolate key drivers of outcome variance in policy datasets.

Software Engineer | CERN Aug 2023-Apr 2024

- Developed Automatic Differentiation (AD) support for CERN's RooFit platform using C++, enabling faster gradient-based optimization, reducing latency by **33%**.
- Implemented fault-tolerant [system](#) architecture for the Minuit optimizer, ensuring robustness in high-throughput data environments.
- Built a Bash-based pipeline to benchmark backend performance.

Data Science Intern | Possip May 2023-Aug 2023

- Created a data engineering plan using Google Cloud to handle traffic of 1600+ schools.
- Deployed a TF-ID vectorizer and knn to silo survey feedback into 5 buckets with 91% accuracy.
- Developed and trained a stacked LSTM architecture in Pytorch to model sequential dependencies in multi-variate series data.

Data Science Intern | Amend Consulting May 2022-Aug 2022

- Facilitated a business process to implement a gate tech to reduce leakage by potentially 30%.
- Trained an ensemble model to classify defective parts on a machine shop component for Nucor steel with 72% accuracy.
- Briefed client CIO on weekly stand-ups and deliverables.
- Implemented an inventory optimization process to reduce a client's manufacturing downtime by 51%.

Data Science Intern | CERN Jan 2021-Aug 2021

- Collaborated with a team from AGH Institute, Krakow to write software for the LHCb experiment in CERN.
- Designed a pipeline for real time data mining and analysis of from an LHCb subdetector.
- Created a workflow to simulate results and track outliers using a custom VAE model.

RELEVANT PUBLICATIONS AND PROJECTS

Identifying and Mitigating Failure Modes in Agents for Automated Data Science Mar 2026

- First author paper exploring failures modes of data science agents, context management strategies, and refined tree search methods, reducing process failures by 54.5%. Published **COLM-2026**

Stellar Anomaly Detection using Variational Autoencoders Dec 2025

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- First author for a paper accepted to the ML4PS workshop at **NeurIPS 2025**: engineered a dataset and built a VAE pipeline that recovers 70% of known objects of interest.
 - Deployed the model as a containerized FastAPI service with ONNX serving and an MLflow registry, with Prometheus/Evidently drift-monitoring.

AI Safety and Human Rights Law Benchmark

Feb 2026

- Co-authored a paper formalizing benchmarking for LLMs for recognizing human rights abuses, developing a responsible and safe llm-as-a-judge framework to evaluate attribution-based metrics, and detecting abuses, and potential breaches of protocols in UN reports. *Outstanding Paper Honorary Mention* at AI4Law workshop at **ICML-2026**, and presented at **UN-Human Rights Council 2026**.

EDUCATION

University of Cincinnati

Master of Science: Computer Science (Natural Language Processing) GPA: 3.7/4.0

Aug 2025

Worked with CincyNLP group under Dr. Tianyu Jiang.

Bachelor of Science: Computer Science, minor-Economics, GPA: 3.9/4.0

Apr 2024

Honors: Summa Cum Laude, Dean's List, Kautz Uible Economics Scholar (top 1% of Econ students), University Honors Scholar

REFERENCES

Dr. Alberto Rossi, Director

AI, Analytics and Future of Work.
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