Nitin Yadav

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Summary

Applied AI engineer and data scientist with expertise in deep learning, computer vision, GenAI/LLMs, statistics, and causal inference. Proven record of building end-to-end AI/ML systems, translating research into scalable, real-world impact.

Education

- **Auburn University** — *Jun 2025 – May 2026 (Expected)*
  Master of Science in Artificial Intelligence Engineering — *Auburn, AL, USA*
- **Auburn University** — *Aug 2022 – Dec 2023*
  Master of Science in Probability and Statistics — *Auburn, AL, USA*
- **BITS Pilani** — *Jul 2016 – May 2020*
  Bachelor of Engineering in Chemical Engineering — *Hyderabad, India*

Technical Skills

- **Coursework**: Machine Learning, Deep Learning, GenAI & LLMs, Evolutionary Algorithms, Causal Inference, Statistical Modeling, Business Analytics, Multivariate Analysis, Linear Algebra, Calculus, Numerical Analysis
- **Tools**: PyTorch, TensorFlow, Transformers, CUDA, CLIP, XGBoost, OpenCV, Pandas, Numpy, Python, R, SQL

Professional Experience

JP Morgan Chase — Analytic Solutions Analyst, Mumbai, India — *Jun 2024 – Aug 2024*

- Performed root-cause analysis, process engineering, and operational improvements for the Equity Ops team.
- Enabled automatic reconciliation for SBL processes using Alteryx workflow, reducing workload equivalent to 1.5 FTE.

Fractal Analytics — Data Analyst, Project Manager, Mumbai, India — *Jun 2020 – Jul 2022*

- Built an ML pipeline (DAGs, scikit-learn) to predict P&G warehouse ETAs using historical data, improved accuracy by 15%.
- Led the CLR project expansion by 20× and scaled a cross-functional team from 1 to 5 as SME/Scrum Manager, managed end-to-end client relations and strategy.
- Developed Python-based algorithms and ETL pipelines to automate data analysis and reporting, formulated 4 key KPIs for monitoring compliance at inference and supporting leadership decision-making.

Research Experience

Harbert College of Business, Auburn University — Research Assistant, Auburn, AL (part-time) — *Sep 2022 – May 2025*

- Examined causal impact of GenAI adoption on Stack Overflow using network science and Difference-in-Differences.
- Documented long-run effects on engagement, including a 2.5× decrease in clustering, 3× increase in node death rate.
- Assisted in introducing the concept of Functional Form Misspecification in statistical modeling to address endogeneity.

Innovation and Research Commons, Auburn University — Data Consultant, Auburn, AL (part-time) — *Aug 2022 – Dec 2023*

- Automated extraction of course data from university-wide LMS (Canvas) to estimate dynamic weekly workloads.
- Consulted 3-5 graduate students and faculty on data analysis, specializing in debugging R and Python scripts.

Academic Projects

Autonomous Agent Learning with Evolutionary Algorithms — *Aug 2025 – Dec 2025*

- Engineered a tree-based Genetic Programming framework to evolve autonomous controllers for the GPac game.
- Developed a competitive co-evolutionary algorithm to evolve adversarial Pac-Man and Ghost agents simultaneously.
- Designed agentic decision-making logic using initialization, mutation, and selection to deploy reinforcement learning.
- Applied multi-objective optimization using Pareto-front analysis to balance score vs complexity via parsimony pressure.

Zero-Shot Object Counting — *Aug 2025 – Dec 2025*

- Implemented the VA-Count framework enabling class-agnostic object counting without human-labeled exemplars.
- Automated exemplar mining using GroundingDINO and a CLIP-based classifier for high-quality single-object examples.
- Achieved state-of-the-art performance on FSC147 dataset, monitored training via Weights & Biases, with data, code, and trained weights publicly available on GitHub for reproducibility.

Object Recognition and Tracking — *May 2025 – Aug 2025*

- Designed a real-time classical vision pipeline to detect and track fast-moving objects under occlusion.
- Built and trained a CNN on MNIST for digit recognition and generalization to custom handwritten inputs.