

# ARUN PATRO

[arun.patro@nyu.edu](mailto:arun.patro@nyu.edu) • [arunpatro.com](https://arunpatro.com) • [linkedin.com/in/arunpatro](https://linkedin.com/in/arunpatro)

## EDUCATION

### NYU Courant Institute of Mathematical Sciences

Masters in Computer Science

Sep 2022 – Present

- **Key Courses:** NLP, Programming Languages, Bayesian Machine Learning, Deep Reinforcement Learning, Graphics, Multi-core

### Indian Institute of Technology, Kharagpur

B.Tech. + M.Tech. in Electrical Engineering (Signal Processing)

Jul 2013 – Apr 2018

- **Key Courses:** Image Processing, Machine Learning, Deep Learning, Digital Signal Processing, Optimization, Copyright Law

## INDUSTRY EXPERIENCE

### Ramp

Software Engineer, Applied AI

Jun 2024 - Now

New York City, USA

At Ramp, I have applied AI to both the product and internal tooling layer to save users and engineers time and money:

- **Product:** Agentic Document OCR and parsing with LLMs - Invoices, Receipts, Contracts, Balance Sheets, Cashflows. SMS Intelligence chatbots, Expense Policy QA with LLMs, Expense Report Grouping + Autocomplete, Tax Capture and Coding for Accounting
- **Internal:** AI Code Reviewer, Code Gen for Testing, Gong Call Watch for Love/Hate
- **Applied AI Infra:** Managing the centralized LLM proxy, structured outputs, OCR and embedding services capturing 99% LLM calls. Managing scale of 100k+ calls per day, 1M Managed braintrust for centralized LLM evals

### Normal Computing

ML Resident

Jun 2023 - Dec 2023

New York City, USA

- **Branches:** Built a framework to visualize advanced reasoning and planning algorithms like Tree Search with LLMs. Worked on *Tree-of-Thought* + *Reflexion* style planning algorithms for objective problem solving.
- **Verilog Code Gen:** Explored LLMs for Verilog Code Generation using prompting, constrained generation, execution feedback and reinforcement learning to solve the VerilogEval dataset.

### Meesho

Data Scientist - II

Nov 2021 - Aug 2022

Bangalore, India

- **Taxonomy Recognition:** Built the founding image engine powering Attribute Extraction, Similarity Learning, Brand Logo identification, Watermark and Fraud identification across multiple product categories. 80% pareto = 35 categories x 10m products per month (avg)
- Deployed and maintained the end-to-end CV-ML system with MLOps. **Project Impact:** 30% Reduction in cost = \$20M per year

### Myntra Designs

Data Scientist

Jul 2018 - Aug 2020

Bangalore, India

- **Warehouse Optimization:** Solving the allocation of products to Myntra's principal warehouses, with dynamic capacities and regional demand. Used Mixed Integer Programming, and simple NNs for regression [\[arxiv\]](#)  
**Project Impact:** 27% Improvement in RU; 20% Improvement in two day delivery
- **GAN Experiments:** Text-to-image generation, mix-and-match interpolations, gradient based estimation of noise vectors in GANs.

## PUBLICATIONS

- Intelligent Warehouse Allocator for Optimal Regional Utilization [\[arXiv\]](#)
- Let AI Clothe You: Diversified Fashion Generation [\[Springer\]](#)
- Evaluation of Loss Functions for Latent Vector Estimation from GANs [\[IEEE\]](#)
- Enhancing Symmetry in GAN-Generated Fashion Images [\[Springer\]](#)

## BLOGS

Monte Carlo Tree Search for Code Generation using LLMs [\[link\]](#) [\[github\]](#)

Developing Advanced Reasoning and Planning Algorithms with LLMs [\[link\]](#) [\[github\]](#)

GPTX: Comparing multi-processing features of Rust and CPP using GPT-2 [\[link\]](#) [\[github\]](#)

Benchmarking rust-vs-cpp for graphics [\[link\]](#) [\[github\]](#)

## SELECTED PROJECTS

### lumos

<https://lumiralabs.github.io/lumos/>

OSS textbook parser with LLMs for sanitizing table of contents, extracting LLM digestible chunks, partitions of chapters

### lumeon

<https://lumeon.app>

AI Learning Studio for Textbooks with lesson, quiz and flashcard generations. CMD-K for search + CMD-L for cursor style chat

## SKILLS

**Languages:** Python, C++, Rust, JS, TS