

EDUCATION

NYU Courant Institute of Mathematical Sciences

Masters in Computer Science

Sep 2022 – Present

- **Key Courses:** Programming Languages, Natural Language Processing, Bayesian Machine Learning, Deep Reinforcement Learning, Computer Graphics, Multi-core systems, Cryptocurrencies and Blockchains, Operating Systems

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

Normal Computing

Jun 2023 - Dec 2023

ML Resident

New York City, USA

- **Branches:** Built a framework to visualize advanced reasoning and planning algorithms with LLMs. LLMs can problem solve better when they think in Trees, and explore multiple ideas slowly using System-2 thinking, while also objectively verifying the generations.
- **Verilog Code Gen:** Explored LLMs for Verilog Code Generation, using prompting, constrained generation, execution feedback and Reinforcement Learning to improve the results on the VerilogEval dataset.

Meesho

Nov 2021 - Aug 2022

Data Scientist - II

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

Jul 2018 - Aug 2020

Data Scientist

Bangalore, India

- **Regional Utilisation:** Modelled the optimal allocation of products to Myntra's principal warehouses considering the dynamic capacity of warehouses. Estimated the regional demand of products using product attributes as features and MLP model. [\[arxiv\]](#)
Project Impact: 27% Improvement in RU; 20% Improvement in 2DD
- **GAN Experiments:** Experimented with text-to-image generation, and interpolations using Attentional GANs. Proposed different gradient aware loss functions for estimating noise vectors in GANs.

PUBLICATIONS

Intelligent Warehouse Allocator for Optimal Regional Utilization [\[arxiv\]](#)

Girish Sathyanarayana, Arun Patro

AI for Fashion Supply Chain Workshop, KDD 2020

Let AI Clothe You: Diversified Fashion Generation [\[link\]](#)

Rajdeep H. Banerjee, Anoop Rajagopal, Nilpa Jha, Arun Patro, Aruna Rajan

Computer Vision - Workshops, ACCV 2018

Evaluation of Loss Functions for Estimation of Latent Vectors from GAN [\[link\]](#)

Arun Patro, Vishnu Makkapati, Jayanta Mukhopadhyay

IEEE Workshop MLSP - 2018

Enhancing Symmetry in GAN Generated Fashion Images [\[link\]](#)

Vishnu Makkapati, Arun Patro

BCS SGAI International Conference on AI-2017

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

3D Digitization of Humans for Size and Fit Estimation

Aug 2020

Won BRONZE at annual Myntra Hackathon. Using two images of a person in tight fit clothes, we could estimate the size and fit of a person upto 1 inch accuracy. We used Open Pose and PIFuHD.

Automated Fashion Generation using GANs

2017 - 2018

Experimented with GANs to improve quality of fashion images with periodic signals (stripes, checks, etc). Worked on inverting GANs to obtain latent code to enable mixing-and-matching designs.

SKILLS

Languages: Python, C++, Rust, JS