

# YASH AGARWAL

Kolkata, West Bengal

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## EDUCATION

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### Jadavpur University

*Bachelor of Engineering in Instrumentation and Electronics*

August 2023 – June 2027 (Expected)

West Bengal, India

- **Core Coursework:** Data Structures & Algorithms, Machine Learning, Deep Learning, Control Systems, Digital Signal Processing
- **Mathematics:** Applied Mathematics, Statistics & Probability, Linear Algebra, Discrete Mathematics

## INDEPENDENT RESEARCH & DEVELOPMENT

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### Project ATLAS: RL for Physical Dynamics & Control



| RL, Gymnasium, TensorFlow

August 2025 – Present

- Formulated a continuous control task using a **Deep Deterministic Policy Gradient (DDPG)** agent to optimize complex physical layouts in high-dimensional action spaces.
- Engineered a custom **physics-based simulation environment** in Gymnasium, modeling non-linear fluid dynamics (wake effects) to train robust planning policies.
- Achieved **92.6% efficiency** against heuristic baselines, demonstrating the efficacy of Reinforcement Learning for spatial planning in physical systems.

### Vision Transformer (ViT) from First Principles



| PyTorch, Computer Vision

July 2025

- Implemented a Vision Transformer architecture from scratch using only PyTorch primitives to deconstruct **Multi-Head Self-Attention** and patch embeddings.
- Investigated signal propagation in deep networks by manually integrating **LayerScale** and **Stochastic Depth**, stabilizing convergence in data-constrained regimes.

## EXPERIENCE

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### Nutrail Analytics

*Lead AI Engineer*

October 2025 – Present

Hybrid

- **Leading** the engineering lifecycle of an autonomous agent, responsible for system architecture and production deployment.
- **Architecting** an agentic workflow using RAG and LLMs to decompose complex cognitive tasks into structured, actionable plans.

### 1M1B in collaboration with Salesforce and AICTE

August 2025 – October 2025

*Green Technology Intern*

Hybrid/Delhi

- Selected as top debater to represent the forum at **UN India offices**, New Delhi (Oct 2025).
- Applied machine learning models to analyze sustainability datasets and identify resource optimization factors.

## TECHNICAL SKILLS

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**Programming Languages:** Python, C++, Verilog, SQL, MATLAB

**ML & Robotics:** PyTorch, Gymnasium, TensorFlow, Keras, NumPy, Pandas, Scikit-learn

**Developer Tools:** Git/GitHub, Docker, Linux (Arch), MLflow, VS Code

**Research Areas:** Deep Reinforcement Learning, Computer Vision, Generative AI, Control Theory

## CERTIFICATIONS ACHIEVEMENTS

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**Oracle Certified Professional:** Generative AI, AI Vector Search, Data Science, Multicloud Architect

**Google Cloud Skill Badges:** Incl. Develop GenAI Apps, Prompt Design, and Vertex AI Multimodality

**SRIJAN 2025 (JU Tech Fest):** 5th Place, Data Drift ML Competition; Finalist in StratEdgeX Ace the Case

**Top 0.7% (Rank: 902)** – WBJEE 2023 entrance exam among 125,000+ candidates