

# DEBJYOTI RAY

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## EDUCATION

|  |                    |          |
|--|--------------------|----------|
| Indian Institute of Information Technology Allahabad, <i>B.Tech in Electronics Engineering</i> | GPA: 8.4           | Oct 2026 |
| Indian Institute of Technology Madras, <i>B.S. in Data Science</i>                             | GPA: 8.13          | Jun 2026 |
| Indian School Certificate(ISC) , <i>Higher Secondary</i>   Kolkata, India                      | Percentage: 95.25% | Aug 2022 |
| Indian Certificate of Secondary Examination(ICSE)   Kolkata, India                             | Percentage: 98.40% | Mar 2020 |

**Courses:** Linear Algebra | Statistics | Calculus | [Data Structures and Algorithms](#) | Machine Learning Fundamentals | Machine Learning Techniques | Object Oriented Programming[JAVA] | System Commands[OS] | Financial Mathematics

## EXPERIENCE

### Crecientech [University of Missouri-Columbia and Alexion Pharmaceuticals Inc.]

*Machine Learning Engineer Intern* | Remote (Boston, Massachusetts)

May 2024 - Jul 2024

- Under guidance of [Prof.Dong Xu](#) and [Dr.Gyan Shrivastava](#) proposed an architecture for precise contextual QA models.
- Built a biomedical knowledge graph pipeline processing 500+ PubMed abstracts with MedPalm-2 and GPT-3.5, achieving 92% accuracy in protein-pathway mapping cross-referenced with STRING-db, and Reactome.
- Scaled automated graph construction by 22.71%, creating 3000+ entities and relationships, used multi-agent architecture for, leveraging small language models (SLMs) to reduce inference time and latency. [\[LINK\]](#) [\[RECOMMENDATION\]](#)

### Sapphire: AI Trader , *Research and Business Lead (Co-Founder)* | India

Aug 2023 - Present

- Developed a novel ensemble trading agent using multiple SOTA reinforcement learning algorithms combined with LLMs on stock market data, achieving a 20% increase in annualized returns and a 15% reduction in volatility.
- Directed an 8-member team under a Board of Advisors in parallel for algorithm development and interface deployment; achieving a 30% growth in net positive independent portfolio over 3 months. [\[GITHUB\]](#)

### WorldQuant, *Quantitative Research Consultant Intern* | Remote (Mumbai, India)

Jan 2024 - May 2024

- Developed **over 150 predictive alphas** to forecast market trends in the USA and China, using comprehensive price-volume and sentiment datasets; delivered alpha submissions with Sharpe ratios under 3.45 and fitness above 1.2.

## PUBLICATIONS

- Bhupesh Dewangan, **Debjyoti Ray**, Sameera, Yijie Ren, Shilpi ,Lei Jiang, Muneendra Ojha, Dong Xu, Gyan Srivastava “Target and Biomarker Exploration Portal for Drug Discovery research”, under review at [Nature Medicine journal](#) ; [\[PAPER\]](#) [\[LIVE LINK\]](#)
- Debjyoti Ray**, Arindam Ghosh, Dr. Muneendra Ojha: “Deep Q-Snake: An Intelligent Agent Mastering the Snake Game with Deep Reinforcement Learning”, accepted at [IEEE TENCON-2024, Singapore](#); [ associated with [AIMS Lab-IIIT Allahabad](#)] [\[GITHUB\]](#)
- Arindam Ghosh, **Debjyoti Ray**, Dr. Muneendra Ojha, Dr. K.P. Singh: “An Investigation on Collective Decision Making in Swarm Navigation”, under review at [Journal of Swarm Intelligence](#); [ associated with [AIMS Lab-IIIT Allahabad](#)] [\[GITHUB\]](#)

## CODING PROFILES

Leetcode: 1895 (**Knight**) [voyager34](#)    Codechef:1641 (**3 star**) [voyager34](#)    Codeforces:1423 (**Specialist**) [voyager34](#)

## SKILLS

|                  |  |
|------------------|--|
| Languages        | Python, C/C++, Java, Matlab, Git, LaTeX  |
| Tools/Frameworks | Numpy, Pandas, Scikit-Learn, OpenAI gymnasium, Pygame, Matplotlib, Seaborn, Tensorflow, Keras, Pytorch, openCV, QuantConnect, Alpaca, Monte Carlo simulation |

## PROJECTS

### Amazon ML Challenge 2024: Feature Extraction from Images

[\[REPORT\]](#)

Sept 2024

- Processed 260,000+ images using PaddleOCR and Qwen-2VL-2B, fine-tuning the latter on 50,000 images by freezing non-critical layers and applying LoRA adapters with 4-bit quantization and FP16 precision. Evaluated performance based on multi-language accuracy and text orientation handling; ranking us 12th out of 75,000+ participating teams.
- Utilized A100 and T4 GPUs for parallel execution, employing Liger kernels, gradient accumulation, and cosine learning rate scheduling to maximize throughput while minimizing computational overhead.

### StreamShop: Real-Time Object Detection

[\[GITHUB\]](#) [\[YOUTUBE\]](#)

Sept 2024

- Implemented the DeVIT (FSOD) algorithm, better than YOLO, processed custom datasets from the Amazon series "Panchayat" to identify objects and recommend Amazon product links in real-time, ranking **Top 10 at Amazon HackOn**.
- Merged DeVIT for real-time object detection and integrated it with a Flask API and websockets for low-latency.Utilized in a Next.js frontend, ranked in Top 10 at Amazon HackOn.

## ACHIEVEMENTS

**Hackathons :** START-A-THON'23, AMAZON-HackOn'24, Hackout'23, [Adobe Gensolve'24](#) , [Amazon ML Challenge'24](#)

**Research Summits:** [All India Research Scholar Summit - IIT Madras'24](#)[Best Product Winners, [Poster](#) and [Oral Presentation](#)]

**Conferences, Programs and Journals :** IEEE TENCON 2024, [ISRO-EXCHANGE](#) , Journal of Swarm Robotics

- Top 4 teams out of 150,000 entrepreneurs in the [STPI \[Startup India Finals\]](#) -[Neuron](#), [Mohali OCW 7.0](#)

- Raised a research grant with one of the highest valuations from [NewGen IEDC](#), [IIIT-Allahabad \(Incubator\)](#) and [Xartup](#)

**Exams:** **99.28%**ile JEE MAINS 2022 || **99.72%**ile WBJEE 2022 || **98.02%**ile JEE ADVANCED 2022 || KVPY SA 2021