

# Aryan Sarswat

[Portfolio](#) | [Email](#) | [LinkedIn](#) | [Github](#)

## EXPERIENCE

---

### Machine Learning Scientist II

Jul 2025 – Present

*Expedia Group*

*Seattle, WA*

- **LLM Evaluation Framework:** Architected multi-stage extendable evaluation pipeline for tool call classification, argument validity, hallucination detection, and instruction following; built system to reverse-engineer user prompts from production Splunk logs (MCP tool arguments) to generate **1K+ sample synthetic dataset** for regression testing without access to raw OpenAI queries; designed analysis dashboard adopted as **company-wide AI quality framework** across multiple teams
- **PromptLab:** Developed internal agentic prompt engineering platform enabling technical & non-technical users to iterate on prompts with auto-generated test cases, evaluation-driven improvements, and multi-LLM provider support
- **ChatGPT MCP Server Integration:** Led development during OpenAI partnership; drove **33+ PRs** across tool development, schema design, and compliance; built hotel, flight, and property info tools with prompt optimization and guardrails. Peaked at **15K users** within 2-week sprint
- **Flight Delay Prediction:** Engineered end-to-end system processing **78M+ rows**; trained production-ready CatBoost model achieving **89.9% accuracy** impacting **38M+ passengers**; operationalized FastAPI real-time inference pipeline; delivered revenue impact modeling analyzing **1.4M+ flights**
- **Hackathon Semi-Finals:** Led team to semi-finals; developed memory system using AI agents for personalized customer interactions; currently transitioning to production

### Machine Learning Science Intern

May 2024 – Jul 2024

*Expedia Group*

*Seattle, WA*

- Developed **Image2Text pipeline** using VLMs (PaliGemma, BLIP-2) with quantized Llama3; deployed to production for image ranking, generating **\$5.4M GP** and **\$1.85M travel ad spend uplift**
- Built Image2Video pipeline (DynamiCrafter, Swin2SR, FLAVR) and Image Relevancy pipeline (CLIP, BLIP) with custom search for destination imagery matching

### Graduate Teaching Assistant – Deep Learning

Jan 2024 – May. 2025

*Georgia Institute of Technology*

*Atlanta, GA*

- Created assignments for building transformers from scratch; held weekly office hours; mentored and graded 5 course projects per semester

### Research Assistant

Aug 2022 – July 2023

*Agency for Science, Technology and Research (A\*STAR)*

*Singapore*

- Developed state-of-the-art deepfake detection models achieving **10% improvement** over existing methods on novel datasets; formulated scalable video processing pipeline handling datasets up to **1TB**

### Teaching Assistant – Machine Learning

Aug 2022 – Dec. 2022

*National University of Singapore*

*Singapore*

- Taught weekly classes of 15 students on ML topics; mentored 3 project groups; involved in setting and grading assignments, exams, and final projects

## EDUCATION

---

### Georgia Institute of Technology

Atlanta, GA

*Master of Science in Computer Science; GPA: 4.0/4.0*

*Aug 2023 – May 2025*

- Concentration: Artificial Intelligence, Perception, and Natural Systems
- Coursework: Deep Learning, NLP, Reinforcement Learning, Computer Vision, Efficient ML

### National University of Singapore

Singapore

*Bachelor of Computing with Distinction; Specialization in Artificial Intelligence*

*Aug 2019 – May 2023*

- University Scholar Programme (USP): Multidisciplinary honors program for top 1% of students

## SELECTED PROJECTS

---

- Cobalt: Scalable Teleoperation for Robot Learning** | *Masters Thesis* Jan 2024 – May 2025
- Developed teleoperation platform to democratize robot learning at scale in simulation and real world
  - Leveraged vectorized environments with load-balanced infrastructure supporting concurrent multi-user teleoperation on single GPU
- Efficient Backdoor Unlearning in Language Models** Jan 2025 – May 2025
- Explored early-stage detection and removal of backdoors in LMs without retraining using SPECTRE’s robust covariance estimation adapted to language modeling context
  - Performed gradient ascent on detected poisoned samples; demonstrated early intervention reduces ASR while maintaining model accuracy with significantly lower computational overhead
- Efficient-Selection-via-Pruning (ESVP)** Jan 2024 – May 2025
- Novel data selection approach using model pruning and quantization for active learning; achieved **1.2-2x speed-up** with structured pruning, **1.35x** with quantization, learning with **50% less data** at only 4% F1 loss
- Zero-Shot Adaptation for Guided Robot Policies** Aug 2024 - Dec 2024
- Introduced framework combining diffusion-based trajectory planners with LLM-generated loss functions for zero-shot policy adaptation; achieved real-time adaptation to spatial and speed constraints in MetaWorld
- Historical Document Restoration with GANs** Jan 2025 – May 2025
- Trained Pix2Pix GAN to reconstruct damaged documents; fine-tuned TrOCR for baselines; demonstrated GAN-based restoration significantly improves OCR accuracy on simulated degradations
- Deep RL in 3D Connect 4** Jan 2024 – May 2024
- Investigated DQN, Actor-Critic, and PPO via self-play; achieved 10-20% success rate against Minimax depth-2, consistently outperforming random and shallow Minimax agents

## HONORS & AWARDS

---

- |  |      |
|--|------|
| <b>Hackathon Semi-Finalist</b> – Expedia Group   | 2025 |
| <b>Hackathon Microsoft, GenAI, and Assurant Challenge Winner</b> – Georgia Institute of Technology | 2024 |
| <b>Certificate of Distinction in AI</b> – National University of Singapore                         | 2022 |
| <b>USP Senior Honour Roll</b> – National University of Singapore                                   | 2021 |