Harshvardhan Agarwal

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Education

2024–2026 **M.S. in Computer Science**, Stanford University CGPA: 4.02/4.0
Relevant Courses: Language Modeling from Scratch, Machine Learning with Graphs, Human-Centered NLP, Principles of Robot Autonomy

2020–2024 **B.Tech. in Computer Science & Engineering**, IIT Bombay CGPA: 9.93/10.0
Relevant Courses: Data Analysis and Interpretation, AI and ML, Intelligent and Learning Agents, Organization of Web Information, Advanced Image Processing

Honors & Awards

- **Silver Medal** at **International Physics Olympiad** (IPhO 2019), Tel Aviv, Israel.
- **Honourable Mention** at **Asian Physics Olympiad** (APhO 2019), Adelaide, Australia.
- **Infosys Award** for excellent performance in **International Olympiads**.
- **ICPC 2024 World Finalist**, Astana, Kazakhstan.
- **Rank 9** in **JEE Advanced 2020** amongst 150,000 aspirants.
- **Rank 6** in **JEE Main 2020** taken by over 1 million aspirants.
- **KVPY Fellowship 2019** recipient with **Rank 3.**

Publications

[1] **Harshvardhan Agarwal**, Sunita Sarawagi, "The missing alignment link of In-Context learning on sequences," in *Proceedings of the Forty-Second International Conference on Machine Learning*, 2025.

[2] Pulkit Agarwal, **Harshvardhan Agarwal**, Vaibhav Raj, Swaprava Nath, "Harmonious balanced partitioning of a network of agents," in *Proceedings of the 24th International Conference on Autonomous Agents and Multiagent Systems*, 2025.

Work Experience

Co-Founder, ContextFort (YC S25) Summer 2025
- Raised 500K$ in pre-seed funding round to develop and launch an agent security system for enterprise developers.

Software Engineering Intern, Optiver Services B.V. Summer 2023
- Engineered and deployed high-throughput data pipelines for real-time orders and trades, supporting efficient data retrieval.

Quantitative Research Intern, Tower Research Capital Winter 2022
- Applied RL to improve PnL in crypto markets, outperforming regression baselines for predicting short-term price movements.

Research Intern, Technische Universität Braunschweig Summer 2022
- Designed optimal strategies for discrete erosion clearing problem and 3D cube-packing proofs.

Research Experience

Long Context Relational Transformer Fall 2025 - Present
Prof. Jure Leskovec and Prof. Carlos Guestrin, Stanford

– Investigating efficient sampling algorithms and architectural optimizations for long context scaling of Relational Transformer.

Stanford Online Deliberation Platform Fall 2024 – Present
Prof. Ashish Goel, Stanford

– Implemented algorithm for auditing justified representation (JR) in expert-question selection for deliberative process.

In-Context Learning for Structured Predictions Summer 2024
Prof. Sunita Sarawagi, IIT Bombay

– Investigated language models' ability to in-context learn alignment in sequences. Developed ICATune for sample efficient learning and improved OOD generalization.

Balanced Multi-Agent Partitioning with Preferences Spring 2024
Prof. Swaprava Nath, IIT Bombay

– Characterized fairness properties (EF and Core) in balanced partitions and proved existence of (1,0)-core partitions. Demonstrated impossibility of envy-free balanced partition for 2D-integer lattices.

Tokenization Techniques in Large Language Models Fall 2023 - Spring 2024
Prof. Preethi Jyothi and Prof. Soumen Chakrabarti, IIT Bombay

– Pretrained tokenization-free models (HLM, Charformer, CANINE), and fine-tuned for NLI and sentiment tasks. Proposed a novel token-generation architecture for morphological end-to-end subword discovery for multilingual text.

Robust Celltree for Distributed Repositories Fall 2023 - Spring 2024
Prof. Manoj Brabhakaran, IIT Bombay and Prof. Indranil Gupta, UIUC

– Developed dynamic, programmable data-tree structures ensuring correctness, liveness, and fault tolerance. Integrated cryptographic PoS mechanisms to prevent Sybil attacks.

Teaching Assistant

- MA 109 Calculus I — *Prof. Mayukh Mukherjee, IIT Bombay*
- CS 251 Software Systems Lab — *Prof. Kavi Arya, IIT Bombay*
- CS 6001 Game Theory and Mechanism Design — *Prof. Swaprava Nath, IIT Bombay*
- CS 217 Artificial Intelligence and Machine Learning — *Prof. Swaprava Nath, IIT Bombay*