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 Projects

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 seq-2-seq alignment. Developed ICATune for sample efficient learning and better 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-freeness for 2D-integer lattices.

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

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

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.

The Homesteading Problem and Packing Cubes Summer 2022
Prof. Sándor Fekete, TU Braunschweig and Prof. Aaron Becker, UH Texas

– Designed optimal strategies for discrete erosion clearing problem and 3D cube-packing proofs.