

# Harshvardhan Agarwal

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## EDUCATION

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- 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

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- **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

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- [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

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- Co-Founder, ContextFort (YC S25)** Summer 2025  
– Built a system to safeguard developer-facing coding agents against prompt-injection and other adversarial inputs. Designed a red-teaming agent to identify vulnerabilities in deployed agents. Raised \$500K in pre-seed funding.
- Software Engineering Intern, Optiver Services B.V.** Summer 2023  
– Designed and implemented a high-performance data retrieval and aggregation pipeline for order-flow data across distributed storage systems, substantially improving latency and throughput. Refined detection logic for aggressive orders relative to self-resting orders to ensure accurate monitoring and analysis.
- Quantitative Research Intern, Tower Research Capital** Winter 2022  
– Built a regression model to forecast short-horizon price movements in highly liquid crypto markets. Optimized trading strategies by applying reinforcement learning to maximize PnL over simulated order-book dynamics.

## RESEARCH EXPERIENCE

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### **K-shot Long Context Relational Transformer**

Fall 2025 - Present

*Prof. Jure Leskovec and Prof. Carlos Guestrin, Stanford*

- Investigating effective graph sub-sampling and example retrieval methods for better informed predictions and optimizing architecture 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. Working on context attributed agenda creation from article and discussion.

### **In-Context Learning for Structured Predictions**

Summer 2024

*Prof. Sunita Sarawagi, IIT Bombay*

- Investigated language models' ability to learn alignment in-context from sequences. Developed ICATune for sample efficient finetuning 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.

### **The Homesteading Problem and Packing Cubes**

Summer 2022

*Prof. Sándor Fekete, TU Braunschweig and Prof. Aaron Becker, UH Texas*

- Developed strategies for maximizing discrete clearance under constant erosion in the  $L_\infty$  norm. Proved optimal worst-case cube packings inside a cuboid, extending known 2D results to three dimensions.

## TEACHING ASSISTANT

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- 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*