Archit Sharma

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Education

Stanford University
*PhD in Computer Science, **Advisor**: Chelsea Finn*   *Jan' 21 – Present*

IIT Kanpur
B.Tech in Electrical Engineering, GPA: 9.9/10   *Jul' 14 – Jun' 18*
Minors: Machine Learning, Linguistics

Experience

Toyota Research Institute   **Los Altos, CA**
Research Intern   *Jun' 23 – Sep' 23*
Fine-tuning large language models.

Google   **Mountain View, CA**
AI Resident   *Jul' 18 – Dec' 20*
Deep reinforcement learning.

IIT Kanpur   **Kanpur, India**
Undergraduate Researcher, Supervisor: Piyush Rai   *Aug' 17 – Apr' 18*
Expectation maximization algorithms for mixture-of-experts.

Mila - Quebec Artificial Intelligence Institute   **Montreal, QC, Canada**
Research Intern, Supervisor: Yoshua Bengio   *May' 17 – Aug' 17*
Gradient estimation across discrete latent variables in deep neural networks.

Selected Articles (* = equal contribution)

Rafael Rafailov*, **Archit Sharma***, Eric Mitchell*, Stefano Ermon, Christopher D. Manning, and Chelsea Finn. *Direct Preference Optimization: You Language Model is Secretly a Reward Model*. Neural Information Processing Symposium (NeurIPS), 2023 (Outstanding Paper Runner Up). `https://openreview.net/forum?id=HPuSIXJaa9`.

Archit Sharma, Shixiang Gu, Sergey Levine, Vikash Kumar, and Karol Hausman. *Dynamics-Aware Unsupervised Discovery of Skills*. International Conference on Learning Representations (ICLR), 2020 (Oral Presentation, <2% rate). `https://openreview.net/forum?id=HJgLZR4KvH`.

Archit Sharma, Sedrick Keh, Eric Mitchell, Chelsea Finn, Kushal Arora, and Thomas Kollar. *A Critical Evaluation of AI Feedback for Aligning Language Large Language Models*. arXiv preprint, 2024.

Lucy Xiaoyang Shi*, **Archit Sharma***, Tony Z. Zhao, and Chelsea Finn. *Waypoint-Based Imitation Learning for Robotic Manipulation*. Conference on Robot Learning (CoRL), 2023. `https://openreview.net/forum?id=X0cmlTh1Vl`.

Jingyun Yang*, Max Sobol Mark*, Brandon Vu, **Archit Sharma**, Jeannette Bohg, and Chelsea Finn. *Robot Fine-Tuning Made Easy: Pre-Training Rewards and Policies for Autonomous Real-World*

Reinforcement Learning. International Conference on Robotics and Automation (ICRA), 2024. `https://arxiv.org/abs/2310.15145`.

Archit Sharma, Ahmed Ahmed, Rehaan Ahmad, and Chelsea Finn. *Self-Improving Robots: End-to-End Autonomous Visuomotor Reinforcement Learning*. Conference on Robot Learning (CoRL), 2023. `https://openreview.net/forum?id=ApxLUk8U-l`.

Katherine Tian, Eric Mitchell, Allan Zhou, **Archit Sharma**, Rafael Rafailov, Huaxiu Yao, Chelsea Finn, and Christopher D. Manning. *Just Ask for Calibration: Strategies for Eliciting Calibrated Confidence Scores from Language Models Fine-Tuned with Human Feedback*. Empirical Methods in Natural Language Processing (EMNLP), 2023. `https://openreview.net/forum?id=g3faCfrwm7`.

Archit Sharma*, Rehaan Ahmad*, and Chelsea Finn. *A State-Distribution Matching Approach to Non-Episodic Reinforcement Learning*. International Conference on Machine Learning (ICML), 2022. `https://proceedings.mlr.press/v162/sharma22a.html`.

Honors

General Proficiency Medal — 2018
Graduating with the highest GPA among EE graduates at IIT Kanpur.

Motorola Gold Medal — 2018
Overall achievement among CS/EE graduates at IIT Kanpur.

Proficiency Prize — 2018
Outstanding Undergraduate Research at IIT Kanpur.

Lalit Narain Das Memorial Scholarship — 2018
Best Senior Student in Electrical Engineering, IIT Kanpur

Sri Singhasan Singh Scholarship — 2017
Highest GPA in Electrical Engineering, IIT Kanpur

Academic Excellence Award — 2015, 2016, 2017
Equivalent to Dean's list at IIT Kanpur.

Joint Entrance Examination — 2014
All India Rank 376 out of 150,000 students.

National Talent Search Scholarship (NTSE) — 2010
Awarded to 1000 students by Govt. of India.

Miscellaneous

Reviewing: ICLR, NeurIPS, CoRL

Mentorship: (*Stanford* undergraduate/MS students) Nikhil Sardana, Rehaan Ahmad, Leo Dong, Fahim Tajwar, Ahmed Ahmed, Sergio Charles, Max Sobol Mark, Lucy Shi

Talks:
- *Beyond RLHF: Simple, Principled and Efficient Fine-tuning of LMs on Human Preferences using DPO*: Stanford, Perplexity AI, DeepMind, Anthropic, Toyota Research Institute, University of Toronto, NeurIPS 2023, Netflix
- *Waypoint-Based Imitation Learning for Robotic Manipulation*: Google DeepMind Robotics
- *Building Autonomous Reinforcement Learning Agents*: Guest Lecture, CS224R @ Stanford.

- *Dynamics-Aware Unsupervised Discovery of Skills*: Oral Presentation at ICLR 2020, Task-agnostic Reinforcement Learning at ICLR 2019 and, Stanford University
- *Towards Autonomous Learning Agents: Challenges and Opportunities in Non-Episodic RL*: Intel, IMPAN RL Seminar
- *On Unsupervised and Autonomous Reinforcement Learning*: Generally Intelligent Podcast

Entry on Google AI Blog: Unsupervised Reinforcement Learning for Skill Discovery

Entry on Stanford AI Laboratory Blog: Self-Improving Robots: Embracing Autonomy in Robot Learning

Teaching: (TA, *Stanford*) CS330: Deep Multi-task and Meta-Learning, (Research mentorship at *IIT Kanpur*) CS698X: Topics in Probabilistic Modeling and Inference