Ayush Jain

CLVR Lab, Lira Lab
Computer Science Department, USC

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EDUCATION

University of Southern California   Aug 2018 - Present
PhD in Computer Science (Joseph J Lim & Erdem Bıyık), GPA: 4.0/4.0
MS in Computer Science

Indian Institute of Technology Delhi   July 2012 - June 2016
B.Tech in Electrical Engineering, GPA: 8.991/10

RESEARCH INTERESTS

My goal is to build **adaptable** intelligent agents in both physical and virtual worlds. Thus, I work on frameworks that enable generalization over actions, environments, tasks, and rewards.
Research Topics: Reinforcement Learning, Imitation Learning, Graph Networks, Multi-task Learning
Application Areas: Robotics, Recommender Systems, Minecraft, Tool Use

PUBLICATIONS

[**Submitted** to ICLR 2024] **A. Jain***, N. Kosaka*, X. Li, K. Kim, J. Lim. "Rethinking Actor-Critic: Successive Actors for Critic Maximization."

[**Submitted** to ICLR 2024] G. Zhang, **A. Jain**, I. Hwang, S. Sun, J. Lim. "Efficient Multi-Task Reinforcement Learning via Selective Behavior Sharing." *Deep RL Workshop, NeurIPS* 2022. [Paper]

A. Jain*, N. Kosaka*, K. Kim, J. Lim. "Know Your Action Set: Learning Action Relations for Reinforcement Learning". *International Conference on Learning Representations*, **ICLR 2022**. [Paper]

A. Jain*, A. Szot*, and J. Lim. "Generalization to New Actions in Reinforcement Learning". *International Conference on Machine Learning*, **ICML 2020**. [Paper | Talk | Environment]

A. Jain, V. Singh, S. Ranjan, R. Rajkumar, S. Agarwal. "Uniform Information Density Effects on Syntactic Choice in Hindi". *Workshop on Linguistic Complexity and NLP, COLING 2018*. [Paper]

A. Jain, V. Singh, S. Agarwal, and R. Rajkumar. "Uniform Information Density models for language production". *39th Annual Conference of the German Linguistic Society*, DGfS 2017. [Abstract | Slides]

PROFESSIONAL EXPERIENCE

Microsoft Research, Montreal, Canada   May 2023 – Aug 2023
Research Intern with Marc-Alexandre Côté
- Language Neural Networks for Text-Conditioned Behavioral Agents in Minecraft.

Naver CLOVA AI Research, Seoul, South Korea (remote)   May 2022 - Aug 2022
Research Intern with Kyung-Min Kim & Joseph J Lim   June 2021 – Dec 2021
- Varying action space in RL for Recommender Systems.
- Large and complex action space in RL for Recommender Systems.

Samsung Research, Seoul, South Korea   Sep 2016 – June 2018
Engineer at Data Analytics Lab
- Market Prediction, Anomaly Detection, Information Extraction & Data Unification.

Samsung Electronics, Suwon, South Korea   May 2015 – July 2015
Software Engineer Intern with Sungmok Seo
- Smart Thermostat Schedule Learning Algorithm.

PATENT

J. Lee, M. Kim, **A. Jain**, T. Hwang, J. Kim, H. Cho. "Method and apparatus for managing operation data of appliance for failure prediction". U.S. Patent No. 11,182,235. 23 Nov. 2021.

ACHIEVEMENTS

- Director's award for being in the top 7% of IIT Delhi for three semesters (2013-14).
- All India Rank of 198 in IITJEE taken by over half a million students (2012).
- All India Rank of 91 in AIEEE taken by over a million students (2012).
- Central Board of Secondary Education Merit Certificate for securing India top 0.1% (2012).
- KVPY Fellowship Award and National Talent Search Examination (NTSE) Scholarship Award.
- All India Rank of 3 in National Science Talent Search Examination, NSTSE (2011).
- India Top 1% in National Standard Examinations (2011) in Physics, Chemistry, and Astronomy.
- India Top 30 in Indian National Astronomy Olympiad (2012).

TEACHING

Teaching Assistant, CSCI-566, USC   Spring 2023
Deep Learning and its Applications, USC (Jesse Thomason).

Teaching Assistant, CSCI-566, USC   Fall 2019, Fall 2020
Deep Learning and its Applications, USC (Joseph J Lim).

Teaching Assistant, CSCI-599, USC   Spring 2019
Deep Learning and its Applications, USC (Joseph J Lim).

REVIEWER SERVICES

- **ICLR**: 2023, 2024
- **NeurIPS**: 2023
- **CoRL**: 2021, 2022, 2023