Ishika Singh

PH.D. STUDENT · COMPUTER SCIENCE · USC

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Education

University of Southern California *Los Angeles, CA*
PHD IN COMPUTER SCIENCE *2021-present*
Advisor: Prof. Jesse Thomason | Coursework: Robotics, Grounding Natural Language

Indian Institute of Technology (IIT) Kanpur *India*
B.TECH, DOUBLE MAJOR IN COMPUTER SCIENCE AND CHEMICAL ENGINEERING *2016 - 2021*

Publications

Research Interests: Language for Robotics, Embodied AI, Robot-Learning, Vision and Language Navigation

Self-Supervised 3D Representation Learning for Robotics *PT4R-ICRA'23*
ISHIKA SINGH, ANTHONY LIANG, MOHIT SHRIDHAR, JESSE THOMASON
Pretraining4Robotics Workshop @ ICRA 2023

Noisy Instructions Are All You Need for VLN Pretraining *O-DRUM - CVPR'23*
WANG ZHU, ISHIKA SINGH*, YUAN HUANG*, ROBIN JIA, JESSE THOMASON
Open-Domain Reasoning Under Multi-Modal Settings workshop @ CVPR 2023

Transformer Adapters for Robot Learning *PRL-CoRL'22*
ANTHONY LIANG, ISHIKA SINGH, KARL PERTSCH, JESSE THOMASON *[pdf]*
Pretraining for Robot Learning workshop @ CoRL 2022

ProgPrompt: Generating Situated Robot Task Plans using Large Language Models *ICRA'23*
ISHIKA SINGH, VALTS BLUKIS, ARSALAN MOUSAVIAN, ANKIT GOYAL, DANFEI XU, JONATHAN TREMBLAY,
DIETER FOX, JESSE THOMASON, ANIMESH GARG *[arXiv | website]*
IEEE International Conference on Robotics and Automation (ICRA) 2023
Also in LaReL workshop @ NeurIPS 2022; LangRob workshop @ CoRL 2022

Pre-trained Language Models as Prior Knowledge for Playing Text-based Games *AAMAS'22*
ISHIKA SINGH, GARGI SINGH, ASHUTOSH MODI *[arXiv | code]*
International Conference on Autonomous Agents and Multiagent Systems 2022: Extended Abstracts

Machine-Learning Techniques for Augmenting Electronic Documents with Data-Verification Indicators *US Patent 2022*
NAVITA GOYAL, VIPUL SHANKHPAL, PRIYANSHU GUPTA, ISHIKA SINGH, BALDIP BIJLANI, ANANDHAVELU N *[pdf]*
US Patent No. 2022/0171935 | Adobe Research

Adapting a Language Model for Controlled Affective Text Generation *COLING'20*
ISHIKA SINGH*, AHSAN BARKATI*, TUSHAR GOSWAMY, ASHUTOSH MODI *[arXiv | talk | code]*
International Conference on Computational Linguistics 2020 (Long Paper, Oral)
Also in *Wordplay: When Language Meets Games workshop @ NeurIPS 2020*

Differentially-private Federated Neural Architecture Search *FL-ICML'20*
ISHIKA SINGH*, HAOYI ZHOU*, KUNLIN YANG, MENG DING, BILL LIN, PENGTAO XIE *[arXiv | code]*
Federated Learning for User Privacy & Data Confidentiality workshop @ ICML 2020 (Long Presentation)

Experience

GLAMOR Lab, USC | PI: Prof. Jesse Thomason   *Aug'21 - Present* | *LA, CA*
Research topic(s): Vision and language navigation, Multi-agent collaborative hierarchical planning, Generative data augmentation for robot learning, Data Cartography.
Simulators worked with: AI2THOR, Habitat, RLBench, VirtualHome, Matterport 3D Simulator (topological and Habitat-based continuous)

NVIDIA Seattle Robotics Lab | Research Intern w/ Valts Blukis and Prof. Animesh Garg   *May - Aug'22* | *Seattle, WA*
Research topic(s): Long-horizon robot task planning using LLMs
Ongoing collaboration project: Adaptive task specification using logical constraints planner

Exploration Lab, IIT Kanpur | PI: Prof. Ashutosh Modi   *Jan'20 - Jul'21* | *India*
Research topic(s): Text-based games, RL, Affective Language Modeling, Text Generation

Big Data Labs, Adobe Research | Research Intern   *Apr - July'20* | *India*
Research topic(s): Information Retrieval, Natural Language Reasoning

UC San Diego | PI: Prof. Pengtao Xie   *Jan - May'20* | *Remote*
Research topic(s): Differential Privacy, Theoretical ML, Federated Neural Architecture Search, Optimization

Awards

2021	**USC Graduate Fellowship**, for 1 year of the Ph.D. program	*USA*
2020	**Adobe India Women in Technology Scholarship**, 5 undergrad/masters awardees nation-wide	*India*
2019-20	**Academic Excellence Award**, for both majors, given to **top 10%** students in the department	*India*
2019	**Grand Prize**, worth 6,800 USD, Deloitte TechnoUtsav2.0 AI competition, **1st** in 9.5K+ contestants	*India*

Academic Service

- Mentored 3 BS/MS student for research projects in GLAMOR lab, on vision-language robot navigation in simulation and real-world, and data cartography for sequential decision-making tasks.
- Co-organized vision-and-dialogue TEACh TATC Challenge at Embodied AI Workshop, CVPR'22.
- Served as secondary reviewer for EMNLP'21; as student volunteer for virtual organization of ICLR'20, ICML'20, etc.