

Raghav Arora

raRaghavAurora@gmail.com | [raRaghavArora.github.io](https://github.com/raRaghavArora) | [linkedin/raRaghavArora](https://www.linkedin.com/in/raRaghavArora) | [github/raRaghavArora](https://github.com/raRaghavArora)

EDUCATION

B.E. - Electrical and Electronics Engineering + MSc. Chemistry
BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

Pilani, India | 2017-2022
CGPA: 8.86/10

RESEARCH EXPERIENCE

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY - HYDERABAD | RESEARCH ENGINEER
Hyderabad, India | October 2022 – Present

- As a part of the Robotics Research Center under Prof. K. Madhava Krishna, I lead multiple projects on vision and language guided robotic applications.
- Combined graph networks with multimodal input data to develop Commonsense Reasoning and map objects to their correct rooms for rearrangement challenge in Embodied AI.
- Incorporating world knowledge displayed by LLMs to allow a household agent to anticipate future tasks.
- Using classical PDDL based planners to generate plans of robotic actions for long-horizon anticipated tasks.
- Showed downstream applications of projects in different simulation environments like AIHabitat, AI2THOR and VirtualHome

UNIVERSITY OF LUXEMBOURG | RESEARCH ASSISTANT (RA)

GUIDE: PROF. ALEXANDRE TKATCHENKO

Luxembourg | Jun 2021 - Oct 2022

- Developed deep learning models for quantum chemistry using the semi-empirical Density Functional Tight-Binding Method.
- Applied innovative methods to develop novel molecular descriptors to encode molecules for neural network input.
- Geometric descriptors from semi-empirical quantum-chemistry methods were combined with existing molecular descriptors to predict different physico-chemical properties of drug molecules from the datasets: QM7X and QM9

PUBLICATIONS

- [1] **Raghav Arora**, Shivam Singh, Karthik Swaminathan, Ahana Datta, Snehasis Banerjee, Brojeshwar Bhowmick, Krishna Murthy Jatavallabhula, Mohan Sridharan, and Madhava Krishna. **2023a**
“Anticipate Act: Integrating LLMs and Classical Planning for Efficient Task Execution in Household Environments”. Under Review at IEEE International Conference on Robotics and Automation (ICRA). Yokohama, Japan.
- [2] **Raghav Arora**, Ayush Agrawal, Ahana Datta, Snehasis Banerjee, Brojeshwar Bhowmick, Krishna Murthy Jatavallabhula, Mohan Sridharan, and Madhava Krishna. **2023b**
“CLIPGraphs: Multimodal Graph Networks to Infer Object-Room Affinities”. In: 32nd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN). Busan, Korea.

FELLOWSHIPS

EASTERN EUROPEAN MACHINE LEARNING SUMMER SCHOOL, 2023  KOŠICE, SLOVAKIA JULY, 2023

I presented our work on CLIPgraphs, at the 5th edition of the EEML summer school. I received full research and travel grant from the organizers: Google DeepMind, ESET, and AlslovakIA.

GLOBAL RESEARCH FELLOWSHIP, 2022 

IPCD BITS PILANI

I received the global research fellowship from IPCD, BITS Pilani for my thesis work on ‘Deep learning for quantum chemistry using Density Functional Tight-Binding Method’

SKILLS

Areas of interest: Representation Learning, Robotics, Planning, Computer Vision **Languages:** Python, C++, C, Java, Bash, Matlab
Technology Pytorch, Keras, OpenCV, Git, Blockchain, , SQL