Ankit Goyal

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Work Experience

2025-   **Senior Research Scientist**, *NVIDIA Robotics Research Lab.*
Mentors: Prof. Dieter Fox, Prof. Fabio Ramos

2022-24   **Research Scientist**, *NVIDIA Robotics Research Lab.*
Mentors: Prof. Dieter Fox, Prof. Fabio Ramos

2021   **Research Intern**, *NVIDIA Robotics Research Lab.*
Mentor: Prof. Dieter Fox, Dr. Arsalan Mousavian, Dr. Chris Paxton, Dr. Yu-Wei Chao

2020   **Research Intern**, *Intel Intelligent Systems Lab.*
Mentor: Dr. Vladlen Koltun

2016   **Research Intern**, *Microsoft Research (MSR).*
Mentor: Dr. Prateek Jain

2015   **Research Intern**, *University of Southern California (USC).*
Mentor: Prof. Shrikanth S. Narayanan, Dr. Naveen Kumar, Prof. Tanaya Guha

2014-15   **Research Assistant**, *IIT Kanpur.*
Mentor: Prof. Nishchal Verma

Education

2018–22   **Ph.D. in Computer Science**, *Princeton University.*
Advisor: Prof. Jia Deng
Thesis: Towards Geometric Intelligence: Seeing, Grounding and Reasoning over Geometries
Qualcomm Innovation Fellowship

2016–18   **M.S. in Computer Science and Engineering**, *University of Michigan.*
GPA: 3.97/4.0, Track: Artificial Intelligence
A+ (outstanding grade above A) in 2/6 courses

2012–16   **B.Tech. in Electrical Engineering**, *Indian Institute of Technology (IIT) Kanpur.*
GPA: 9.8/10.0, Minor: Computer Science
Rank 2/150 students | A* (outstanding grade above A) in 10/45 courses
Sridhar Memorial Prize for best student in Electrical Engineering

Awards and Recognition

2023   **RSS Pioneers Award**, *Cohort of 30 most promising early-career robotics researchers in the world.*

2022   **NeurIPS Scholar Award**.

2021   **Qualcomm Innovation Fellowship**, $100,000 *research grant, acceptance rate 15%.*

2021   **Outstanding Reviewer**, *ICCV*, Top 5% of all reviewers.

2016   **Sridhar Memorial Prize**, *IIT Kanpur*, Best student in Electrical Engineering.

2015   **Viterbi-India Scholarship**, *USC and Indo-US Science and Technology Forum (IUSSTF).*

2013, 2014, 2015   **Academic Excellence Award**, *IIT Kanpur*, Awarded thrice for academic performance.

Peer-Reviewed Articles

24   **Maniflow: A general robot manipulation policy via consistency flow training**.
G Yan, J Zhu, Y Deng, S Yang, RZ Qiu, M Memmel, R Krishna[†], **A Goyal**[†], X Wang[†], D Fox[†]
Conference on Robot Learning **(CoRL)**, 2025 [†] Equal Contribution

23   **HAMSTER: Hierarchical Action Models For Open-World Robot Manipulation**.
Y Li[*], Y Deng[*], J Zhang[*], J Jang, M Memmel, R Yu, CG, F Ramos, D Fox, A Li[†], A Gupta[†], **A Goyal**[†]
International Conference on Learning Representations **(ICLR)**, 2025 [*] Equal Contribution [†] Equal Advising

22   **3D-MVP: 3D Multiview Pretraining for Robotic Manipulation**.
S Qian, K Mo, V Blukis, D Fouhey, D Fox, **A Goyal**
Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2025

21 **Differentiable GPU-Parallelized Task and Motion Planning**.
W Shen, C Garrett, **A Goyal**, T Hermans, F Ramos
Robotics: Science and Systems **(RSS)**, 2025

20 **Discovering Robotic Interaction Modes with Discrete Representation Learning**.
L Wang, **A Goyal**, H Xu, A Garg
Conference on Robot Learning **(CoRL)**, 2024

19 **RVT-2: Learning Precise Manipulation from Few Examples**.
A Goyal, V Blukis, J Xu, Y Guo, YW Chao, D Fox
Robotics: Science and Systems **(RSS)**, 2024

18 **Single-Shot Visual Relationship Detection for the Accurate Identification of Contact-Driven Hazards in Sustainable Digitized Construction**.
D Kim, **A Goyal**, S Lee, V Kamat, M Liu
Sustainability, 2024

17 **AdaDemo: Data-Efficient Demonstration Expansion for Generalist Robotic Agent**.
T Mu, Y Guo, J Xu, **A Goyal**, H Su, D Fox, A Garg
International Symposium of Robotics Research **(ISRR)**, 2024

16 **RVT: Robotic View Transformer for 3D Object Manipulation**.
A Goyal, J Xu, Y Guo, V Blukis, YW Chao, D Fox
Conference on Robot Learning **(CoRL)**, 2023 Oral (Top 6.6% of submitted papers)

15 **Shelving, Stacking, Hanging: Relational Pose Diffusion for Multi-modal Rearrangement**.
A Simeonov, **A Goyal**, L Manuelli, L Yen-Chen, A Sarmiento, A Rodriguez, P Agrawal, D Fox
Conference on Robot Learning **(CoRL)**, 2023

14 **Infinite Photorealistic Worlds using Procedural Generation**.
A Raistrick, L Lipson, Z Ma, L Mei, M Wang, Y Zuo, K Kayan, H Wen, B Han, Y Wang, A Newell, H Law, **A Goyal**, K Yang, J Deng
Conference on Computer Vision and Pattern Recognition **(CVPR)**, 2023

13 **ProgPrompt: Generating Situated Robot Task Plans using Large Language Models**.
I Singh, V Blukis, A Mousavian, **A Goyal**, D Xu, J Tremblay, D Fox, J Thomason, A Garg
International Conference on Robotics and Automation **(ICRA)**, 2023

12 **Non-Deep Networks**.
A Goyal, A Bochkovskiy, J Deng, V Koltun
Neural Information Processing Systems **(NeurIPS)** , 2022

11 **IFOR: Iterative Flow Minimization for Robotic Object Rearrangement**.
A Goyal, A Mousavian, C Paxton, Y W Chao, B Okorn, J Deng, D Fox
Conference on Computer Vision and Pattern Recognition **(CVPR)** , 2022

10 **Coupled Iterative Refinement for 6D Multi-Object Pose Estimation**.
L Lipson, Z Teed, **A Goyal**, J Deng
Conference on Computer Vision and Pattern Recognition **(CVPR)** , 2022

9 **Revisiting Point Cloud Classification with a Simple and Effective Baseline**.
A Goyal, H Law, B Liu, A Newell, J Deng
International Conference on Machine Learning **(ICML), 2021**

8 **Rel3D: A Minimally Contrastive Benchmark for Grounding Spatial Relations in 3D**.
A Goyal, K Yang, D Yang, J Deng
Neural Information Processing Systems **(NeurIPS)**, 2020 Spotlight (Top 4% of submitted papers)

7 **PackIt: A Virtual Environment for Geometric Planning**.
A Goyal, J Deng
International Conference on Machine Learning **(ICML)**, 2020

6 **Semantic Relation Detection Between Construction Entities To Support Safe Human-Robot Collaboration in Construction**.
D Kim, **A Goyal**, A Newell, S Lee, J Deng, V Kamat
ASCE International Conference on Computing in Civil Engineering **(i3CE)**, 2019

5 **Think Visually: Question Answering through Virtual Imagery**.
A Goyal, J Wang, J Deng
Annual Meeting of the Association of Computational Linguistics **(ACL)**, 2018

4 **ProtoNN: Compressed and Accurate kNN for Resource-scarce Devices**.
C Gupta, AS Suggala, **A Goyal**, HV Simhadri, B Paranjape, A Kumar, S Goyal, R Udupa, M Varma, P Jain
International Conference on Machine Learning **(ICML)**, 2017

3 **A Multimodal Mixture-of-Experts Model for Dynamic Emotion Prediction in Movies**.
A Goyal, N Kumar, T Guha, SS Narayanan
IEEE International Conference on Acoustics, Speech, and Signal Processing **(ICASSP)**, 2016

2 **Object Matching using Speeded Up Robust Features**.
NK Verma, **A Goyal**, AH Vardhan, RK Sevakula, A Salour
Asia Pacific Symposium on Intelligent and Evolutionary Systems **(IES)**, 2015

1 **Template Matching for Inventory Management using Fuzzy Histogram and Spatial Filters**.
NK Verma, **A Goyal**, A Chaman, RK Sevakula and A Salour
IEEE Conference on Industrial Electronics and Applications **(ICIEA)**, 2015

Pre-prints

2 **VLA-0: Building State-of-the-Art VLAs with Zero Modification**.
A Goyal, H Hadfield, X Yang, V Blukis, F Ramos

1 **OG-VLA: 3D-Aware Vision Language Action Model via Orthographic Image Generation**.
I Singh, **A Goyal**, S Birchfield, D Fox, A Garg, V Blukis

Invited Talks

2025 **Guest Lecture @ UT Dallas, CS 6341 Robotics**, *Perspectives on Designing VLAs.*

2025 **Keynote @ Spatial Intelligence Workshop, ICCV**, *Keep it simple when building VLAs.*

2025 **NVIDIA Research Onsite**, *HAMSTER: Hierarchical VLAs.*

2025 **NVIDIA Robotics Perception and Simulation Workshop**, *HAMSTER: Hierarchical VLAs.*

2024 **MILA Robot Learning Seminar**, *View Transformers for 3D Manipulation in Robotics.*

2024 **Keynote @ Manipulation Skills Workshop, ICCV**, *Towards fast and precise sensorimotor skill learning.*

2023 **Spotlight @ NeuRL-RMW Worskhop, CoRL**, *RVT: Robotic View Transformer for 3D Object Manipulation.*

2023 **UW Robotics Colloquium**, *RVT: Robotic View Transformer for 3D Object Manipulation.*

2023 **Seattle Robotics Club**, *Towards General Purpose Robotic Learning.*

2023 **MILA Vision Reading Group**, *RVT: Robotic View Transformer for 3D Object Manipulation.*

2023 **NVIDIA NVCV All-hands**, *RVT: Robotic View Transformer for 3D Object Manipulation.*

Service

2025-26 **Area Chair**.
○ **2026**: ICLR
○ **2025**: ICLR

2024-25 **Program Committee Member**.
○ **2025**: R^3: Reasoning for Robust Robot Manipulation Workshop, RSS
○ **2024**: RSS Pioneers Workshop

2020-24 **Reviewer**.
○ **2025**: ICRA Workshop Proposal
○ **2024**: RSS, RAL
○ **2023**: CVPR, RSS
○ **2022**: ICLR, CVPR, ECCV, ICML, NeurIPS
○ **2021**: ICLR, CVPR, ICCV, ICML, NeurIPS
○ **2020**: ICLR, CVPR, ECCV, TPAMI

2013-15 **Counselling Service**, *IIT Kanpur*.
○ **Assistant Coordinator**: Responsible for managing sensitive situations in the undergraduate community and organizing week-long orientation for over 800 first-year students
○ **Academic Mentor**: Mentored students struggling academically.
○ **Student Guide**: Ensured smooth induction of 6 first-year students into the college environment.

Mentoring

2025 **Marius Memmel**, *PhD UW*, Co-mentored with A Li.

2024   **Yi Li**, *Memeber of Technical Staff xAI, PhD UW*.

2024   **Haoping Xu**, *Applied Scientist Amazon, PhD U Toronto*.

2024, 2025   **Liquan Wang**, *PhD GTech*.

2023   **Shengyi Qian**, *Research Scientist Meta, PhD UMich*.

2022   **Anthony Simeonov**, *Research Scientist Boston Dynamics, PhD MIT*, Co-mentored with L Manuelli.

2022, 2025   **Ishika Singh**, *PhD USC*, Co-mentored with V Blukis.

2020   **Bowei Liu**, *BS Princeton*.

Teaching Experience

Fall 2019   **COS529 Advanced Computer Vision**, *Princeton University*, Graduate Student Instructor.

Fall 2018   **COS429 Computer Vision**, *Princeton University*, Head Teaching Assistant.

Winter 2018   **EECS442 Computer Vision**, *University of Michigan*, Graduate Student Instructor.

Fall 2017   **EECS442 Computer Vision**, *University of Michigan*, Graduate Student Instructor.