

Toan Nguyen

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Education

- PhD in Computer Science**, University of Southern California Aug 2025 – Present
- GPA: 4.0/4.0
 - Coursework: Robot Learning, Robotic Perception, Advanced NLP
- BS in Computer Science**, Ho Chi Minh City University of Science (HCMUS) Sep 2019 – March 2024
- GPA: 3.64/4.0

Research Experience

- PhD Researcher**, University of Southern California Aug 2025 - Now
- Advised by Prof. Yue Wang and Prof. Daniel Seita
- AI Research Resident**, FPT Software Jul 2022 – Apr 2025
- Advised by Prof. Anh Nguyen (University of Liverpool) and Prof. Thieu Vo (University of Bath)
 - Developed methods for open-vocabulary 3D affordance detection and language-driven robotic grasp detection using diffusion models and vision-language correlation mechanisms.
 - Developed an LLM-based multi-agent system for language-driven scene decoration.
- Undergraduate Research Assistant**, HCMUS Jan 2022 – Jul 2022
- Advised by Prof. Binh Nguyen (HCMUS) and Dr. Huy Ung (KDDI Research)
 - Developed a method combining contrastive learning and data augmentation for insect pest classification.

Publications

* indicates co-first authors, † indicates equal advising

ICLR: In-Context Imitation Learning with Visual Reasoning

Toan Nguyen, Weiduo Yuan, Songlin Wei, Hui Li, Daniel Seita[†], Yue Wang[†]
Under submission to IROS 2026

RoboDesign1M: A Large-scale Dataset for Robot Design Understanding

Tri Le, Toan Nguyen, Quang Tran, Quang Nguyen, Baoru Huang, Hoan Nguyen, Minh N. Vu, Tung Ta, Anh Nguyen
Under submission to IROS 2026

SlotVLA: Towards Modeling of Object-Relation Representations in Robotic Manipulation

Taisei Hanyu*, Nhat Chung*, Huy Le, Toan Nguyen, Yuki Ikebe, Anthony Gunderman, Duy Nguyen Ho Minh, Khoa Vo, Tung Kieu, Kashu Yamazaki, Chase Rainwater, Anh Nguyen, Ngan Le
IEEE International Conference on Robotics and Automation (ICRA), 2026

Rethinking Progression of Memory State in Robotic Manipulation: An Object-Centric Perspective

Nhat Chung*, Taisei Hanyu*, Toan Nguyen, Huy Le, Frederick Bungarner, Duy Nguyen Ho Minh, Khoa Vo, Kashu Yamazaki, Chase Rainwater, Tung Kieu, Anh Nguyen, Ngan Le
AAAI Conference on Artificial Intelligence (AAAI), 2026

Language-Driven 6-DoF Grasp Detection Using Negative Prompt Guidance

Toan Nguyen, Minh N. Vu, Baoru Huang, An Vuong, Quan Vuong, Dung Nguyen, Ngan Le, Thieu Vo, Anh Nguyen
European Conference on Computer Vision (ECCV), 2024. [Oral Presentation (2.33%)]

HabiCrowd: A High-Performance Simulator for Crowd-Aware Visual Navigation

An Vuong, Toan Nguyen, Minh N. Vu, Baoru Huang, Dung Nguyen, Binh Huynh, Thieu Vo, Anh Nguyen
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024

Language-Conditioned Affordance-Pose Detection in 3D Point Clouds

Toan Nguyen, Minh N. Vu, Baoru Huang, Tuan Vo, Vy Truong, Ngan Le, Thieu Vo, Bac Le, Anh Nguyen
IEEE International Conference on Robotics and Automation (ICRA), 2024

Open-Vocabulary Affordance Detection Using Knowledge Distillation and Text-Point Correlation

Tuan Vo, Minh N. Vu, Baoru Huang, *Toan Nguyen*, Ngan Le, Thieu Vo, Anh Nguyen
IEEE International Conference on Robotics and Automation (ICRA), 2024

Language-Driven Scene Synthesis Using Multi-Conditional Diffusion Model

An Vuong, Minh N. Vu, *Toan Nguyen*, Baoru Huang, Dung Nguyen, Thieu Vo, Anh Nguyen
Conference on Neural Information Processing Systems (NeurIPS), 2023

Open-Vocabulary Affordance Detection in 3D Point Clouds

Toan Nguyen, Minh N. Vu, An Vuong, Dung Nguyen, Thieu Vo, Ngan Le, Anh Nguyen
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023. **[Best Paper & Best Student Paper Awards Finalist (0.43%)]**

Presentations

Oral paper presentation, ECCV 2024

Milano, Italy

Oral paper presentation, IROS 2023

Michigan, USA

Honors and Awards

- **Viterbi Graduate Fellowship**, University of Southern California, 2025
- **Registration Grant**, ECCV, 2024
- **Oral Presentation**, ECCV, 2024
- **Award for Technology and Innovation Publications**, Ho Chi Minh City University of Science, 2024
- **Best Paper & Best Student Paper Awards Finalist**, IROS, 2023

Professional Services

- **Conference Reviewer**: ICRA 2026, WACV 2026, IROS 2025, ECCV 2024, ICRA 2024, IROS 2024
- **Journal Reviewer**: RA-L 2025
- **Organizer**: UROS, a student-run, cross-department robotics reading group and seminar series at USC

Skills

Tools: Git, ROS, Docker, Blender

Languages: English (8.0 IELTS), Vietnamese (Native)