



Online Briefing Meeting
Mar 20 2025

RoboTwin Dual-Arm Collaboration Challenge

2nd MEIS Workshop @ CVPR 2025



Wed June 11th - Sun June 15th, 2025
The Music City Center, Nashville TN

RoboTwin Benchmark

Scan Me ! →



Webpage: <https://robotwin-benchmark.github.io/cvpr-2025-challenge>

Why this Challenge?

- We do most things with our two arms
- The future of robotic manipulation lies in dual-arm manipulation

What will you do?

- Leveraging the RoboTwin simulation and Cobot-Magic platform to tackle dual-arm manipulation in both simulation and real world
- Push the boundary of existing dual-arm manipulation policies

Organizers & Sponsors

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Awards (Bonus only for Real-world)



First Prize (\$1500)

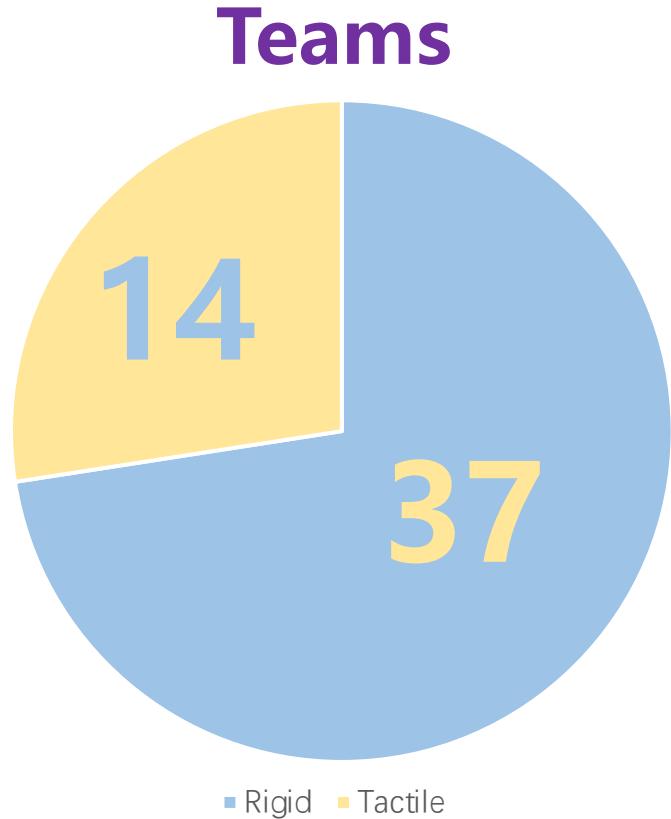


Second Prize (\$1000)



Third Prize (\$500)

Important Update: Pre-Registration



We received **51** valid pre-registration

- 37 from **Track 1: Rigid Manipulation**
- 14 from **Track 2: Tactile Manipulation**

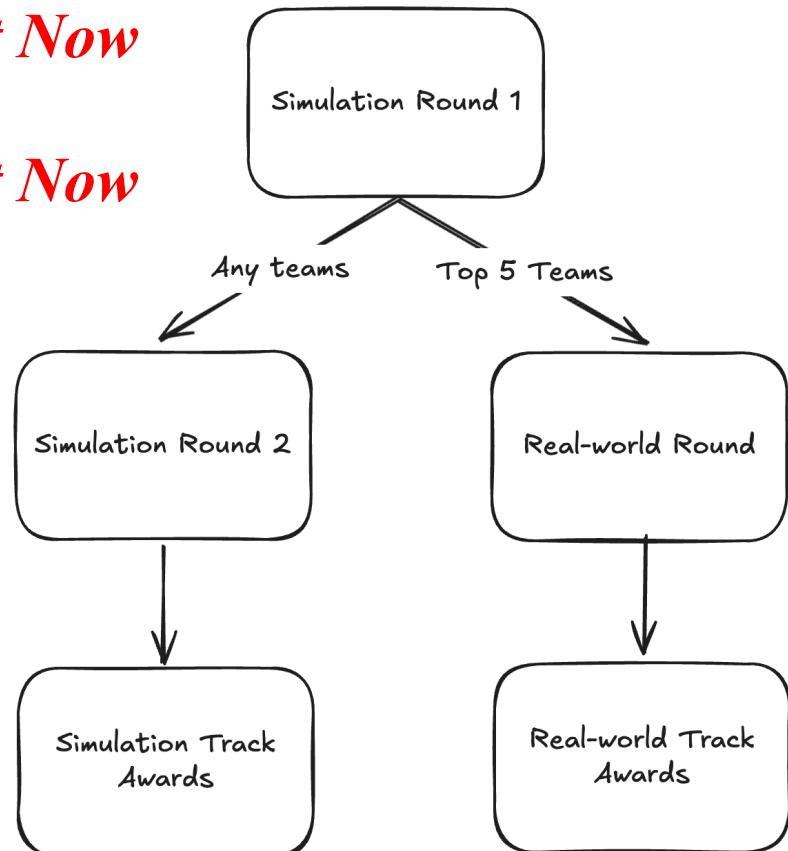
Registration

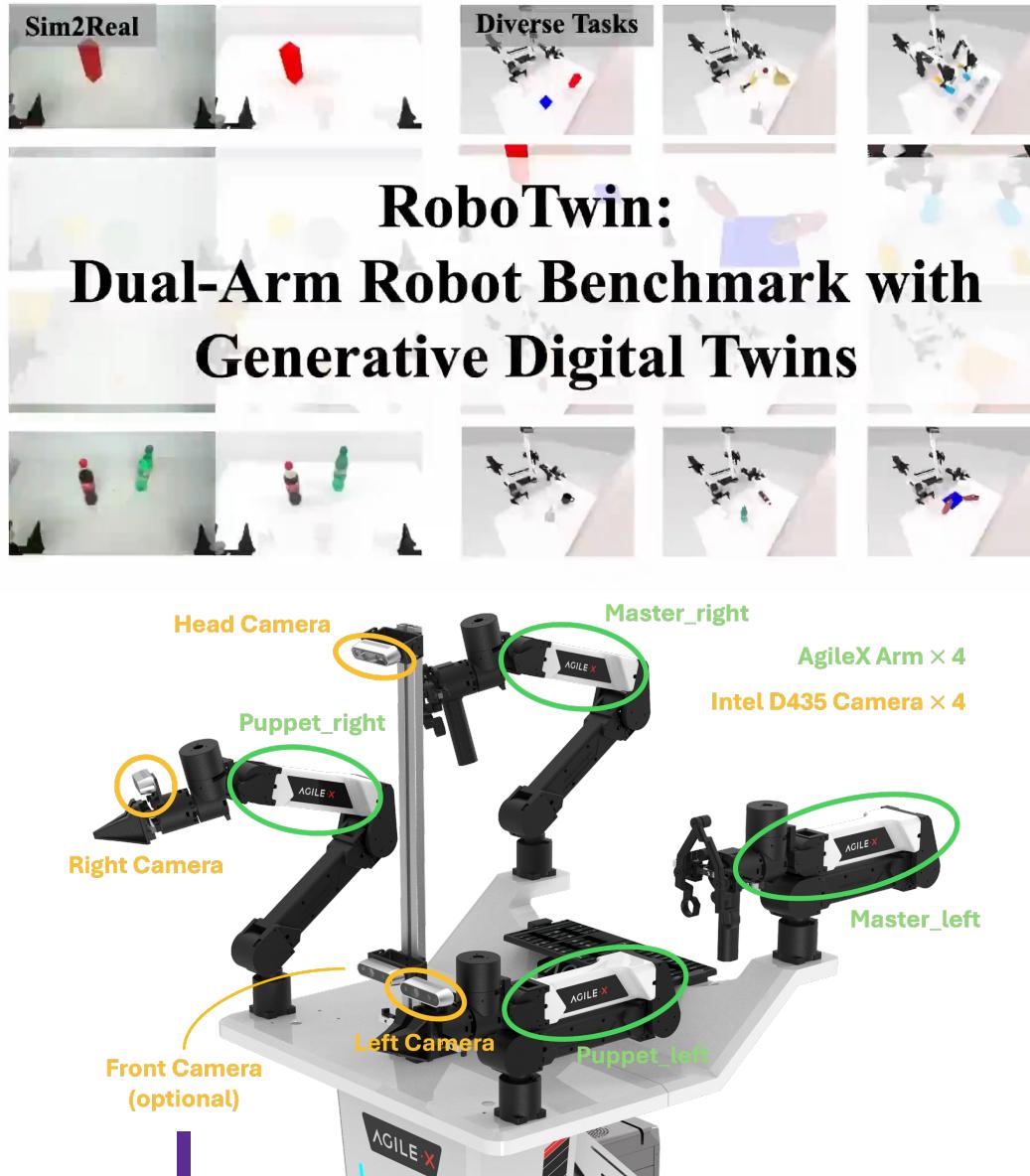


The **Track 2: Tactile Manipulation** is **CANCELLED** due to overwhelming number of teams and logistical constraints.
Substituted by a 5-point bonus.

If you decide to join the competition, fill in the **Registration form**. You can find it in your email later or on the official website. Note: Each team cannot have more than 8 members.

Events	Time
• Registration Start (until Apr 16)	Mar 20 <i>Right Now</i>
• Simulation Round 1 (SR 1) Start	Mar 20 <i>Right Now</i>
• SR 1 End & Qualifying Team Release	Apr 30
• Real-world Round / Sim Round 2 Start	Apr 30
• Real-world Code & ckpt Deadline	Jun 03
• Sim Round 2 End	Jun 11
• On-site Competition	Jun 11-15

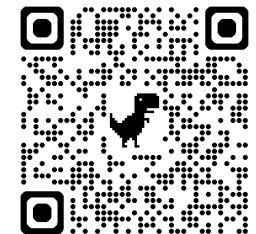




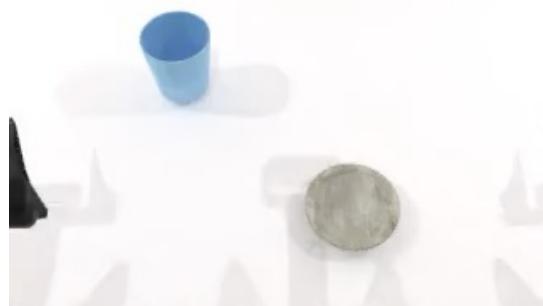
D-Robotics × CVPR Competition Platform

- RoboTwin Simulation Platform
- 6 Tasks (5 Rigid + 1 Tactile as Bonus)
- Code has already been released
- D-Robotics Cloud Platform for Eval

- **Code** RoboTwin Github Repository **CVPR-2025-Challenge Branch**
- **Link** <https://github.com/TianxingChen/RoboTwin/tree/CVPR-2025-Challenge>
- *We strongly recommend competition teams to watch for updates of this repository.*
- *We'll also notify you by email if there are any updates.*
- **Round 1 Mar 20 – Apr 30 Round 2 Apr 30 – Jun 11**
- **Top 5 Teams will qualify for the Real-world Round**



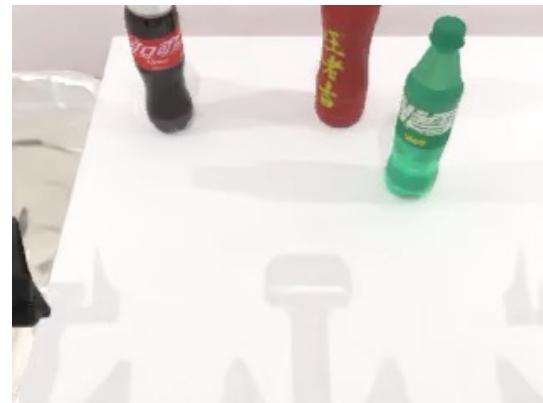
Code



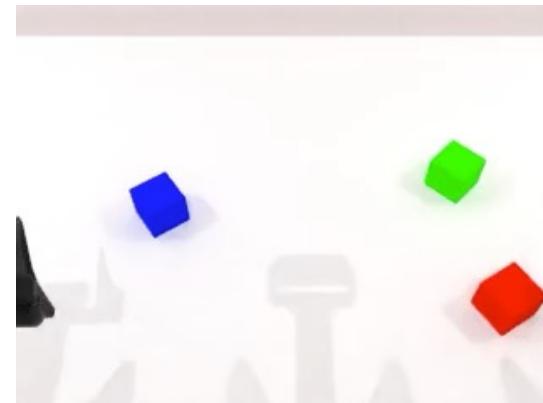
empty_cup_place



dual_shoes_place



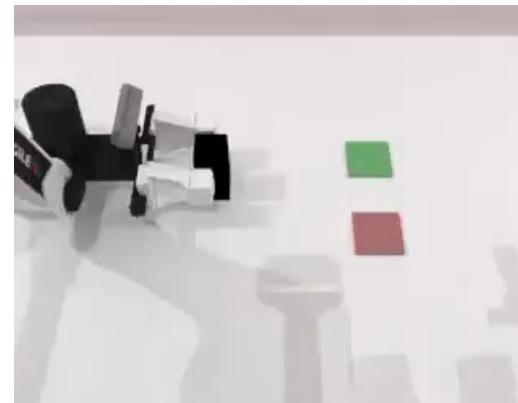
put_bottles_dustbin



blocks_stack_hard

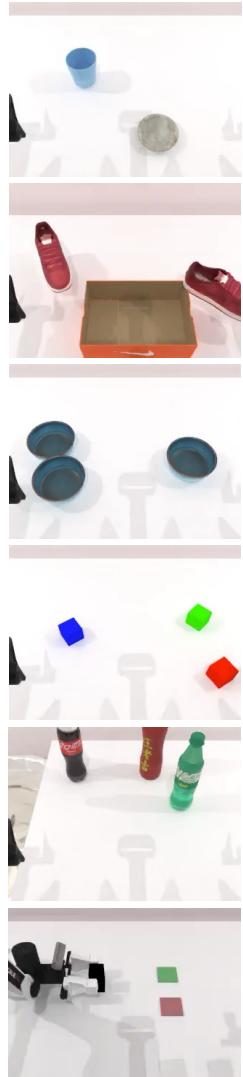


bowls_stack



classify_tactile

- **5 Rigid Object Manipulation Tasks**
- **1 Tactile Manipulation Task**
- **End-to-End Policy required:** We will review every team's code
- **Unlimited training data from simulation (modifying task_config)**



Evaluation will automatically be done on the cloud platform after valid submission

Device: Single 4090 24GB

Evaluation tasks (totaling 100 points)

- Placing the cup on the coaster – 10 points
- Placing shoes – 6 points for first shoe placed, 14 more for the second
- Stacking bowls – 6 points for stacking two bowls, 14 more for the third
- Stacking cubes – 10 points for stacking two cubes, 15 more for the third
- Dispose three bottles from the desk into the trash
 - 5 points for disposing one bottle
 - 12.5 points for two
 - 25 points for all three

Bonus task (5 points) (releasing soon)

- Classifying between rectangular cuboid and a 25-sided prism - 5 points

We will run the evaluation for 100 times (10 for tactile) and take the average

You can check the leaderboard on the cloud platform (updated real-time)

Simulation Round : Some Details

- Download our submission tool
 - Detailed instruction in the codebase
- Observation includes
 - 4 RGBD camera output
 - Proprioception – joint angles and gripper state (as action)
 - Reprojected pointcloud (from head camera)
 - End effector poses
- Action required
 - Same shape as joint_action – joint angles and gripper state



Data Structure

observation

```

| |-- left_camera
| | |-- intrinsic_cv
| | |-- extrinsic_cv
| | |-- cam2world_gl
| | |-- rgb
| | |-- depth
| |-- right_camera
| | ...
| |-- head_camera
| | ...
| |-- front_camera
| | ...
  
```

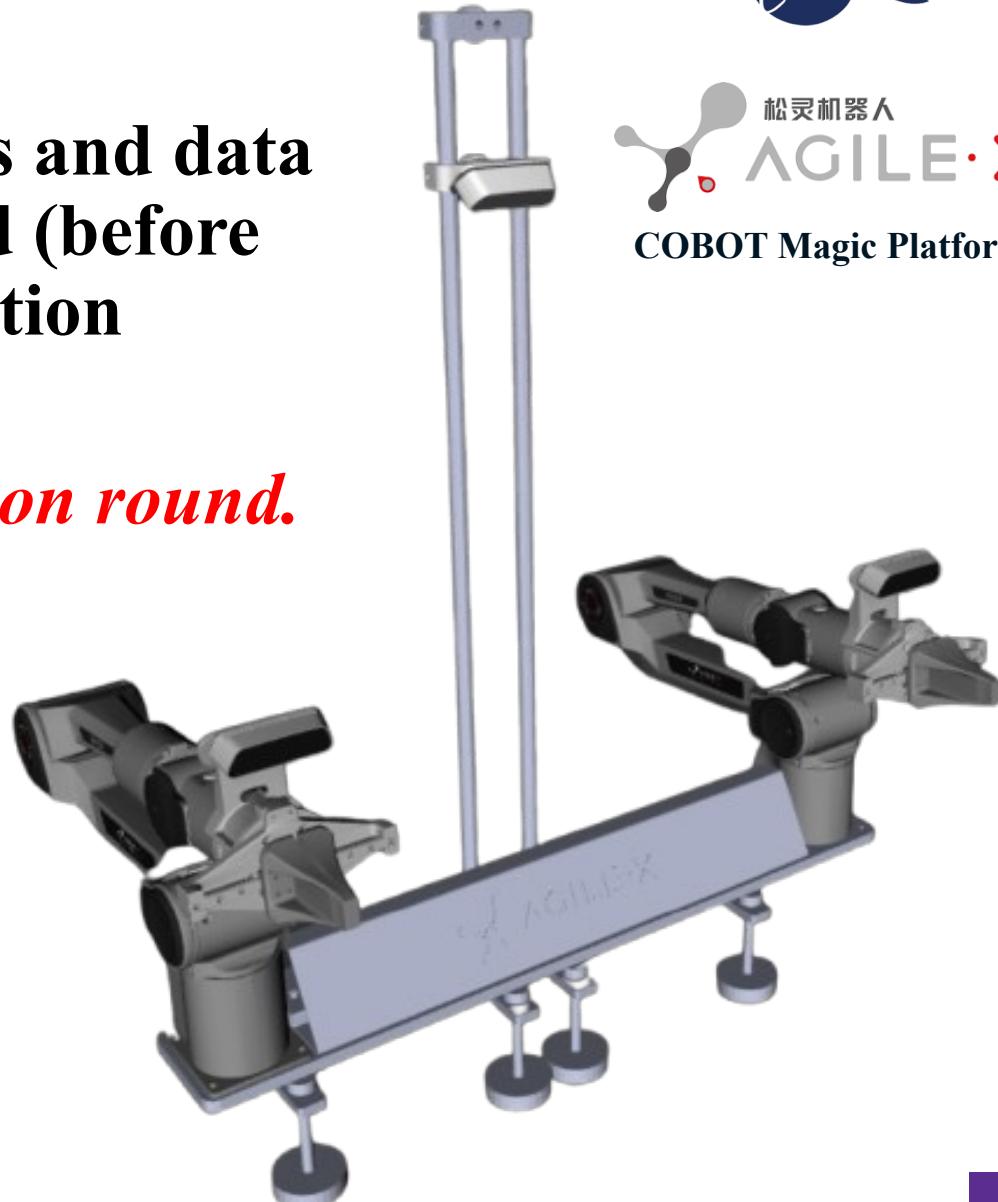
pointcloud (single-view)
 joint_action # as action
 endpose
 obs_rgba

We will release around **5** real world tasks and data in advance before the Real-World Round (before Apr 15) based on the preliminary simulation competition.

Most will be aligned with tasks in simulation round.

The final competition will be held offline in the US. Specific time and location will be emailed. Teams are encouraged to have at least one member get a US visa for participation.

Award winner teams will be required to submit a technical report.





Email

Challenge Process

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Github Issues

<https://github.com/TianxingChen/RoboTwin/issues>



X (twitter)

<https://x.com/MarioChan2002>

WeChat Group





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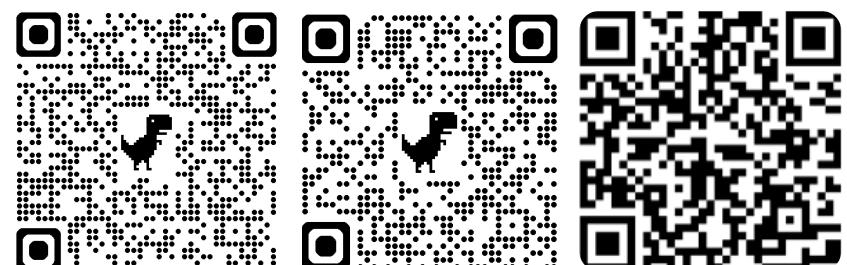
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Registration Codebase

Webpage



Q & A section

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